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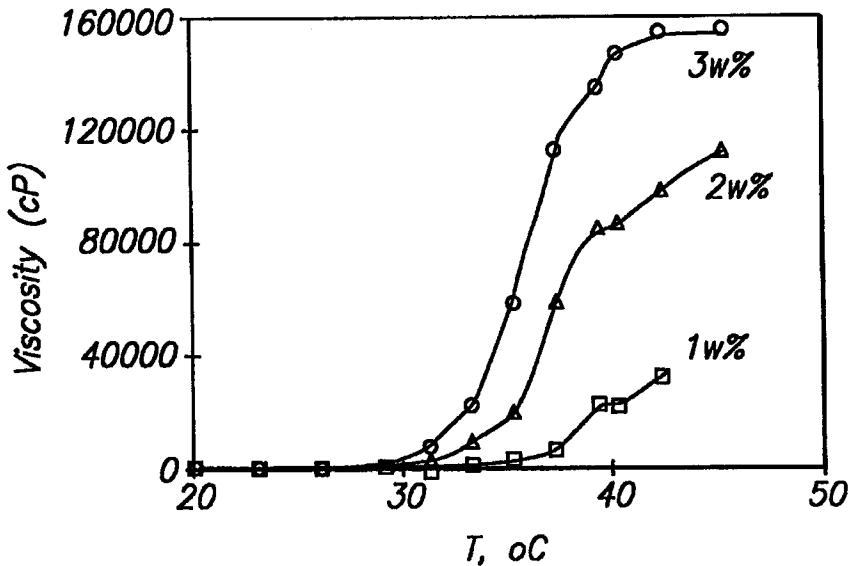
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(54) Title: COMPOSITIONS FOR COSMETIC APPLICATIONS



(57) Abstract

A cosmetic composition is described having a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.

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COMPOSITIONS FOR COSMETIC APPLICATIONS

This application is a continuation-in-part application of copending application U.S.S.N. 60/034,805 filed January 2, 1997, and entitled "Responsive Polymer Networks and Methods of Their Use", which is a continuation-in-part application of copending application PCT/US96/10376 filed June 14, 1996, designating the United States, and entitled "Responsive Polymer Networks and Methods of Their Use", which is a continuation-in-part application of copending application U.S.S.N. 08/580, 986 filed January 3, 1996, and entitled "Responsive Polymer Networks and Methods of Their Use", each of which is incorporated entirely by reference.

Field of the Invention

The present invention relates to a cosmetic composition useful in a variety of topical and personal care products, including treatments of disorders and imperfections of the skin or other areas of the body. More particularly, the present invention is directed to a cosmetic composition comprising a poloxamer:poly(acrylic acid) polymer network that can be designed to reversibly gel over a wide range of conditions to provide a composition having a controllable range of viscosities, making it useful in a variety of cosmetic and personal care applications.

20

Background of the Invention

Many examples are known of cosmetic compositions intended for treatment of the skin or elsewhere on the body, where it is desired to have certain properties of viscosity. Hydrogels, such as cellulosics, have been included as thickeners in cosmetic compositions. A hydrogel is a polymer network which absorbs a large quantity of water without the polymer dissolving in water. The hydrophilic areas of the polymer chain absorb water and form a gel region. The extent of gelation depends upon the volume of the solution which the gel region occupies.

Reversibly gelling solutions are known in which the solution viscosity increases and decreases with an increase and decrease in temperature, respectively. Such

reversibly gelling systems are useful wherever it is desirable to handle a material in a fluid state, but performance is preferably in a gelled or more viscous state.

A known material with these properties is a thermal setting gel using block copolymer polyols, available commercially as Pluronic® polyols (BASF, Ludwigshafen, 5 Germany), which is described in U.S. Patent No. 4, 188, 373. Adjusting the concentration of the polymer gives the desired liquid-gel transition. However, concentrations of the polyol polymer of at least 18-20% by weight are needed to produce a composition which exhibits such a transition at commercially or physiologically useful temperatures. Also, solutions containing 18-20% by weight of 10 responsive polymer are typically very viscous even in the "liquid" phase, so that these solutions can not function under conditions where low viscosity, free-flowing is required prior to transition. In addition, these polymer concentrations are so high that the material itself may cause unfavorable interactions during use.

Another known system which is liquid at room temperature, but forms a semi-solid when warmed to about body temperature is formed from tetrafunctional block polymers of polyoxyethylene and polyoxypropylene condensed with ethylenediamine, 15 commercially available at Tetronic® polyols. These compositions are formed from approximately 10% to 5-% by weight of the polyol in an aqueous medium. See, U.S. Patent No. 5,252,318.

20 Joshi, et al. in U.S. Patent No. 5,252,318 reports reversible gelling compositions which are made up of a physical blend of a pH-sensitive gelling polymer (such as a cross-linked poly(acrylic acid) and a temperature-sensitive gelling polymer (such as methyl cellulose or block copolymers of poly(ethyleneoxide) and poly(propyleneoxide)). In compositions including methylcellulose, 5- to 8-fold 25 increases in viscosity are observed upon a simultaneous change in temperature and pH for very low methylcellulose levels (1-4 % by weight). See, Figs. 1 and 2 of Joshi, et al. In compositions including Pluronic® and Tetronic® polyols, commercially available forms of poly(ethyleneoxide)/poly(propyleneoxide) block copolymers, significant increases in viscosity (5- to 8-fold) upon a simultaneous change in temperature and pH 30 are observed only at much higher polymer levels. See, Figs. 3-6 of Joshi, et al.

Hoffman, et al. in WO95/24430 disclose block and graft copolymers comprising a pH-sensitive polymer component and a temperature-sensitive polymer component. The block and graft copolymers are well-ordered and contain regularly repeating units of the pH-sensitive and temperature-sensitive polymer components. The copolymers
5 are described as having a lower critical solution temperature (LCST), at which both solution-to-gel transition and precipitation phase transition occur. Thus, the transition to a gel is accompanied by the clouding and opacification of the solution. Light transmission is reduced, which may be undesirable in many applications, where the aesthetic characteristics of the composition are of some concern.

10 Thus, the known systems which exhibit reversible gelation are limited in that they require large solids content and/or in that the increase in viscosity is less than 10-fold. In addition, some known systems exhibit an increase in viscosity which is accompanied with the undesirable opacification of the composite.

15

Summary of the Invention

It is an object of the present invention to provide a cosmetic composition which includes a component capable of reversible gelation or viscosification.

It is a further object of the invention to provide a cosmetic composition which includes an ingredient capable of gelation or viscosification at very low solids content.

20

It is another object of the present invention to provide a cosmetic composition which possesses improved flow and gelation characteristics as compared to properties possessed by conventional reversible gelation compositions.

25

It is a further object of the invention to provide a polymer network composition for use in cosmetic compositions useful as a surfactant or emulsifier in the solubilization of additives and, in particular, hydrophobic additives.

It is a further object of the invention to provide a cosmetic composition which possesses the appropriate thickness, emolliency and cosmetic effect with a minimum of solids content.

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It is a further object of the invention to provide a polymer network for use in cosmetic compositions useful as a suspending agent for otherwise insoluble additives.

It is yet a further object of the present invention to provide a composition capable of solubilizing emulsions at elevated temperatures.

It is yet a further object of the invention to provide new and useful cosmetic compositions incorporating the reversibly gelling polymer network composition of the
5 present invention, which take advantage of its unique advantageous properties.

It is yet another object of the present invention to provide reversibly gelling polymer network compositions which are composed of biocompatible polymers.

These and other objects of the invention are achieved with a cosmetic compositions which incorporates a poloxamer:poly(acrylic acid) polymer network as a
10 cosmetically acceptable carrier. The polymer network comprises a poloxamer component randomly bonded to a poly(acrylic acid), or PAA, component in an aqueous-based medium, the polymer network being capable of aggregating in response to an increase in temperature. The reverse thermal viscosifying poloxamer:poly(acrylic acid) polymer network includes random covalent bonding between the poly(acrylic acid)
15 component and the poloxamer component of the network. The polymer network may also include some unbound or "free" poloxamer or other additives which contribute to or modify the characteristic properties of the polymer composition.

In addition, the cosmetic composition includes a cosmetic agent selected to provide a preselected cosmetic effect. By "cosmetic agent", as that term is used herein,
20 it is meant that the additive imparts a cosmetic effect. A cosmetic effect is distinguishable from a pharmaceutical effect in that a cosmetic effect relates to the promoting bodily attractiveness or masking the physical manifestation of a disorder or disease. In contrast, a pharmaceutic seeks to treat the source or symptom of a disease or physical disorder. It is noted however, that the same additives may have either a
25 cosmetic or pharmaceutical effect, depending upon the amounts used and the manner of administration.

By "cosmetic", as that term is used herein, it is meant the cosmetic and personal-care applications intended to promote bodily attractiveness or to cover or mask the physical manifestations of a disorder or disease. Cosmetics include those products
30 subject to regulation under the FDA cosmetic guidelines, as well as sunscreen products,

acne products, skin protectant products, anti-dandruff products, and deodorant and antiperspirant products.

By "gelation" or viscosification, as that term is used herein, it is meant a drastic increase in the viscosity of the polymer network solution. Gelation is dependent on the initial viscosity of the solution, but typically a viscosity increase in the range of 2- to 100-fold, and preferably 5- to 50-fold, and more preferably 10- to 20-fold is observed in the polymer network which is used in the preparation of the cosmetic compositions of the invention. Such effects are observed in a simple polymer network solution and the effect may be modified by the presence of other components in the cosmetic composition.

By "reversibly gelling" as that term is used herein, it is meant that the process of gelation takes place upon an *increase* in temperature rather than a decrease in temperature. This is counter-intuitive, since it is generally known that solution viscosity *decreases* with an increase in temperature.

As used herein, "poloxamer" is a triblock copolymer derived from poly(ethyleneoxide)-poly(propyleneoxide)-poly(ethyleneoxide) blocks. The poloxamer is capable of responding to a change in temperature by altering its degree of association and/or agglomeration. The aggregation may be in the form of micelle formation, precipitation, labile cross-linking or other factors. The poloxamer has the general formula of a triad ABA block copolymer, $(P_1)_a(P_2)_b(P_1)_a$ where P_1 =poly(ethyleneoxide) and P_2 =poly(propyleneoxide) blocks, where a is in the range of 10-50 and where b is in the range of 50-70.

The poly(acrylic acid) component includes poly(acrylic acid) and its salts. The poly(acrylic acid) supports and interacts with the poloxamer component so that a multi-material, responsive polymer network is formed. The interaction of the poloxamer and poly(acrylic acid) exhibits a synergistic effect, which magnifies the effect of the poloxamer component in viscosifying and/or gelling the solution.

The novel interaction between the constituent polymers components of the polymer network permits formation of gels at very low solids content. Gelation and/or viscosification is observed in aqueous solutions having about 0.01 to 20 wt% of the

poloxamer component and about 0.01 to 20 wt% of the poly(acrylic acid) component. A typical reversibly gelling polymer network may be comprised of less than about 4 wt% of total polymer solids (e.g., poloxamer and poly(acrylic acid)) and even less than 1 wt% total polymer solids while still exhibiting reverse thermal viscosification. Of course, the total solids content including additives of a reversibly gelling polymer network composition may be much higher. The viscosity of the gel increases at least ten-fold with an increase in temperature of about 5°C at pH 7 and 1 wt% polymer. Viscosity increases may be even greater over a larger temperature range at pH 7 and 1 % polymer network content.

The relative proportion of poloxamer and poly(acrylic acid) may vary dependent upon the desired properties of the polymer composition. In one embodiment, the poloxamer is present in a range of about 1 to 20 wt% and the poly(acrylic acid) is present in a range of about 99 to 80 wt%. In another embodiment, the poloxamer component is present in a range of about 79 to 60 wt%. In another embodiment, the poloxamer component is present in a range of about 41 to 50 wt%. In another embodiment, the poloxamer component is present in a range of about 51 to 60 wt% and the poly(acrylic acid) component is present in a range of about 49 to 40 wt%. In yet another embodiment, the poloxamer component is present in a range of about 61 to 90 wt% and the poly(acrylic acid) component is present in a range of about 39 to 20 wt%. In another embodiment, the poloxamer component is present in a range of about 81 to 99 wt% and the poly(acrylic acid) component is present in a range of about 10 to 1 wt%.

The poloxamer:poly(acrylic acid) polymer network described above is included in a cosmetic composition to improve the flow characteristics, thickness and other properties of the composition. The composition includes additional cosmetic agents, such as are needed for the cosmetic purpose of the composition. Additives also may be included to modify the polymer network performance, such as to increase or decrease the temperature of the liquid-to-gel transition and/or to increase or decrease the viscosity of the responsive polymer composition.

In one aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to impart thickening properties to the cosmetic composition at the use and/or application temperature. Such thickening properties include enhanced overall viscosity, as well as a desirable viscosity response
5 with temperature. The polymer network may be useful as a thickener in pH ranges where other thickeners are not effective.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to stabilize and solubilize hydrophobic agents in the cosmetic composition. The polymer network may be
10 included to increase emulsion stability. Many emulsions, i.e., suspension of small droplets or particles of a first material in a second material, lose viscosity upon heating. As will be demonstrated herein, the poloxamer:poly(acrylic acid) polymer network retains its emulsifying properties even with temperature increase.

In addition, it may be included in the composition to impart emolliency to the
15 composition. The composition may also act as a film-forming agent after it has been applied to the skin. This film-forming agent may be used as a barrier to prevent water loss from the skin which contributes to the moisturization of the skin.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network may be included as an additive in cosmetic applications to prevent viscosity
20 loss at elevated temperatures.

Brief Description of the Drawing

The invention is described with reference to the Drawing, which is presented for the purpose of illustration and is in no way intended to be limiting, and in which:
25 FIG. 1 is a graph of viscosity vs. temperature for a 1 wt%, 2 wt%, and 3 wt% responsive polymer network aqueous composition of a poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of 0.44 sec⁻¹;
FIG. 2 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition demonstrating reversibility
30 of the viscosity response;

FIG. 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates;

FIG. 4 shows a viscosity response curve for a 2 wt% poloxamer:poly(acrylic acid) polymer network composition prepared with nominal mixing and stirring and
5 prepared using high shear homogenization (8000 rpm, 30 min);

FIG. 5 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition at various pHs;

FIG. 6 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition with and without addition
10 of 0.25 wt% KCl;

FIG. 7 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition with and without addition of 0.5 wt% acetamide MEA;

FIG. 8 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition without and with 5 wt%, 10
15 wt% and 20 wt% added ethanol, respectively;

FIG. 9 is an illustration of a reversibly gelling polymer network used as an emulsifier and stabilizer for a hydrophobic agent;

FIG. 10 is a schematic illustration of the poloxamer:poly(acrylic acid) polymer
20 network below and above the transition temperature illustrating the aggregation of the hydrophobic poloxamer regions;

FIG. 11 is a graph of viscosity vs. pH for a 1 wt% responsive polymer network aqueous composition of a poloxamer/poly(acrylic acid) (1:1) measured at a shear rate of 0.44 sec⁻¹;

25 FIG. 12 is a plot of viscosity vs. temperature for (a) a 1 wt% responsive polymer network aqueous composition of Pluronic® F127 poloxamer:poly(acrylic acid) (1:1) and (b) a 1 wt% physical blend of Pluronic® F127 poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate 0.22 sec⁻¹;

FIG. 13 is a plot of viscosity vs. temperature for a 1 wt% responsive polymer network aqueous composition of Pluronic® F88 poloxamer:poly(acrylic acid) (1:1) in deionized water at pH 7.0 measured at shear rate of 22 sec⁻¹;

5 FIG. 15 is a plot of viscosity vs. temperature for a responsive polymer network composition of 2 wt% Pluronic® F123 poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of 22 sec⁻¹;

FIG. 16 is a plot of viscosity vs. temperature for 1 wt% made of series of poloxamers and poly(acrylic acid) (1:1) in deionized water at a shear rate of 132 sec⁻¹;

10 FIG. 17 is a plot showing release of hemoglobin from a poloxamer:poly(acrylic acid) polymer network of the invention;

FIG. 18 is a plot showing the release of lysozyme from the poloxamer:poly(acrylic acid) polymer complex of the invention;

FIG. 19 is a plot showing release of insulin from a poloxamer:poly(acrylic acid) polymer network composition of the invention;

15 FIG. 20 is a plot of viscosity vs. temperature for a poloxamer:poly(acrylic acid) polymer network composition (a) before and (b) after sterilization by autoclave;

FIG. 21 is a plot of viscosity vs. temperature for an oil-free moisturizing formulation prepared form (a) a responsive polymer network composition of the invention and (b) a convention oil-in-water formulation;

20 FIG. 22 is a plot of equilibrium solubility of estradiol (A, B) and progesterone (C, D) in aqueous solutions (pH 7) of Pluronic® F127 (A, C) and responsive polymer network (B, D) vs. temperature;

25 FIG. 23 is a plot of the ratio of equilibrium solubilities of estradiol in responsive polymer network and water vs. polymer concentration in the responsive polymer network solutions;

FIG. 24 is a plot of the effect of loading fluorescein on the onset of gelation of responsive polymer network vs. total polymer concentration in responsive polymer network solution (pH 7.0);

30 FIG. 25 is a plot of the percentage of (a) estradiol and (b) progesterone release from responsive polymer network vs. time;

FIG. 26 is a plot of the rate of progesterone release and macroscopic viscosity vs. polymer concentration;

FIG. 27 is a plot of the percentage of progesterone release vs. polymer concentration in responsive polymer network; and

5 FIG. 28 is a plot of the relative diffusivity of poly(styrene) latex particles in water and responsive polymer network.

Detailed Description of the Invention

The present invention is directed to a cosmetic composition comprising a
10 cosmetically acceptable carrier comprising a novel poloxamer:poly(acrylic acid)
polymer network. The polymer network functions as a temperature sensitive thickening
agent, and in addition possesses surfactant and emulsifying capabilities which may be
beneficial to the cosmetic composition. The polymer network composition according to
the invention includes a poloxamer component randomly bonded to a poly(acrylic acid)
15 component. The two polymer component may interact with one another on a molecular
level. The polymer network contains about 0.01 - 20 wt% each of poloxamer and
poly(acrylic acid). Exemplary polymer network compositions range from about 1:10 to
about 10:1 poloxamer:poly(acrylic acid). Polymer network gel compositions which
exhibit a reversible gelation at body temperature (25-40°C) and/or at physiological pH
20 (ca. pH 3.0-9.0) and even in basic environment up to pH 13 (hair care) are particularly
preferred for cosmetic applications.

In one embodiment of the invention, a 1:1 poloxamer:poly(acrylic acid) polymer
network at appropriate pH exhibits flow properties of a liquid at about room
temperature, yet rapidly thickens into a gel consistency of at least about five times
25 greater, preferably at least about 10 times greater, and even more preferably at least
about 30 times and up to 100 times greater, viscosity upon increase in temperature of
about 10°C and preferably about 5°C. The reversibly gelling polymer network of the
present invention exhibit gelation even at very low polymer concentrations. For
example, polymer network compositions at pH 7 comprising about 0.5 wt% poloxamer
30 component and about 0.5 wt% PAA exhibits a significant increase in viscosity from a

free-flowing liquid (50 cps) to a gel (6000 cps). The observed gelation takes place at low solids contents, such as less than 20 wt% or preferably less than about 10 wt%, or more preferably less than about 2.5 wt% or most preferably less than about 0.1 wt%. Thus, only a small amount by weight of the polymer network need be incorporated into 5 a cosmetic composition in order to provide the desired thickening or viscosifying effect.

The reverse viscosification effect at low polymer concentrations provides clear, colorless gels which are particularly well-suited to cosmetic applications. For example, very little residue is formed upon dehydration which may be important in some applications, such as in topically applied cosmetics. An additional advantage of the 10 polymer network of the invention is that it remains clear and translucent above and below the critical temperature or pH. These characteristics of the reversibly gelling polymer network make it well suited for use in cosmetic compositions.

The polymer network of the present invention technology may be added to cosmetic formulations to increase the thickness and viscosity of the composition. The 15 poloxamer:poly(acrylic acid) polymer network possesses hydrophobic regions capable of aggregation. Unlike conventional thickeners, the aggregation of the polymer network of the present invention is temperature sensitive. Thus the inventive polymer network of the present invention may have a transition temperature (i.e., temperature of aggregation) above room temperature so that the cosmetic composition is of low 20 viscosity at or below room temperature and is of high viscosity at or around body temperature (body temperature includes both surface and internal body temperature). Thus, a composition may be prepared at low temperatures while the polymer network is in a low viscosity state. Mixing of ingredients under low viscosity is expected to be easier, thus simplifying the manufacturing process. Yet, the resultant mixture would be 25 of increased viscosity at use temperatures. As a further advantage, a cosmetic composition comprising poloxamer:poly(acrylic acid) polymer network may be spread thinly to allow for even application, due to its low viscosity at room temperature, but will thicken and "fill" the skin contours upon warming up to body surface temperature.

In another aspect of the invention, the composition may be applied through a 30 nozzle that provides high shear to reduce viscosity, yet the composition regains its

viscosity after application to the skin. This contrasts with conventional formulations which permanently lose viscosity after being subjected to high shear.

In another aspect of the invention, the composition may be formulated and applied as a liquid, spray, semi-solid gel, cream, ointment, lotion, stick, roll-on
5 formulation, mousse, pad-applied formulation, and film-forming formulation.

The poloxamer:poly(acrylic acid) polymer network may also be included in a cosmetic composition for use as a stabilizing, solubilizing or emulsifying agent for a hydrophobic component of the cosmetic formulation. The strong hydrophilic regions of the poloxamer resulting from aggregation and micelle formation create hydrophobic
10 domains which may be used to solubilize and control release of hydrophobic agents. Similar micelle-based systems have been shown to protect trapped peptides against enzymatic degradation from surface enzymes.

The reversibly gelling polymer network of the present invention is a unique polymer composition designed to abruptly change its physical characteristics or the
15 characteristics and properties of materials mixed therewith with a change in temperature. Without intending to be bound by any particular mechanism or chemical structure, it is believed that the structure of the polymer network involves a random bonding of the poloxamer onto the backbone of the poly(acrylic acid). A portion of the poloxamer which is present during the polymerization reaction which forms the
20 poly(acrylic acid) is bonded to the backbone of the forming poly(acrylic acid) through hydrogen abstraction and subsequent reaction. See detailed discussion of the mechanism, below. The combination of the poly(acrylic acid) and randomly bonded poloxamer gives the composition its unique properties. Any free poloxamer remaining after polymerization of PAA remains associated with the random co-polymer, resulting
25 in a miscible composition. Free poloxamer may also be present in the polymer network composition; however, its presence is not required in order to observe reverse thermal viscosification.

The poly(acrylic acid) may be linear, branched and/or cross-linked. Poly(acrylic acid) is capable of ionization with a change in pH of the solution. By
30 ionization, as that term is used with respect to poly(acrylic acid), it is meant the

formation of the conjugate base of the acrylic acid, namely acrylate. As used herein, poly(acrylic acid) includes both ionized and non-ionized versions of the polymer. Changes in ionic strength may be accomplished by a change in pH or by a change in salt concentration. The viscosifying effect of the polymer network is partly a function
5 of the ionization of the poly(acrylic acid); however, reverse thermal gelling may occur without ionization. Changes to the ionic state of the polymer causes the polymer to experience attractive (collapsing) or repulsive (expanding) forces. Where there is no need or desire for the composition to be applied in a high viscosity state, it may be possible to prepare the composition as non-ionized poly(acrylic acid). The body's
10 natural buffering ability will adjust the pH of the applied composition to ionize the poly(acrylic acid) and thereby develop its characteristic viscosity.

The poloxamer possesses regions of hydrophobic character, e.g., poly(propyleneoxide) blocks, and hydrophilic character, e.g., poly(ethyleneoxide) blocks. The poloxamer may be linear or branched. Suitable poloxamers include triad
15 block copolymers of poly(ethyleneoxide) and poly(propyleneoxide) having the general formula $(P_1)_a(P_2)_b(P_1)_a$, where P_1 = poly(ethyleneoxide), and P_2 = poly(propyleneoxide) blocks, where a is in the range of 10-50 and where b is in the range of 50-70, where poly(propyleneoxide) represents the hydrophobic portion of the polymer and poly(ethyleneoxide) represents the hydrophilic portion of the polymer.
20 Pluronic® polymers (BASF) are commercially available for (a) in the range of 16 to 48 and (b) ranging from 54-62. One or more poloxamers may be used in the reversibly gelling polymer network composition of the present invention.

The reversibly gelling responsive polymer networks compositions of the present invention are highly stable and do not exhibit any phase separation upon standing or
25 upon repeated cycling between a liquid and a gel state. Samples have stood at room temperature for more than three months without any noticeable decomposition, clouding, phase separation or degradation of gelation properties. This is in direct contrast to polymer blends and aqueous mixed polymer solutions, where phase stability and phase separation is a problem, particularly where the constituent polymers are
30 immiscible in one another.

And example of the dramatic increase in viscosity and of the gelation of the reversibly gelling polymer network compositions of the invention is shown in Figure 1.¹³ Figure 1 is a graph of viscosity vs. temperatures for 1 wt%, 2 wt%, and 3 wt% polymer network compositions comprising 1:1 poloxamer:poly(acrylic acid) hydrated and neutralized. The viscosity measurements were taken on a Brookfield viscometer at a shear rate of 0.44 sec⁻¹ at pH 7.0. All solutions had an initial viscosity of about 1080 cP and exhibited a dramatic increase in viscosity to gel point at about 35°C. This is not typical of all polymer network compositions since polymerization condition will affect initial viscosity. Final viscosities were approximately 33,000 cP, 100,000 cP and 10 155,000 cP for the 1 wt%, 2 wt% and 3 wt% compositions, respectively. This represents viscosity increases of about 30-, 90- and 140-fold, respectively. This effect is entirely reversible. Upon cooling, the composition regains its initial viscosity. This is demonstrated in Figure 2, where a 1 wt% poloxamer:poly(acrylic acid) composition is warmed through the transition temperature up to 35°C (simple curve), cooled to 15 room temperature (24°C, ticked curve) and then warmed again up to above the transition temperature (open box curve). The viscosity response was virtually identical in all three instances.

As would be expected with a non-Newtonian system, the solution viscosity differs with different shear rates. Figure 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates. The viscosity response is consistent between 24°C and 34°C; however, the final viscosity is reduced with increasing shear rate.

However, unlike many prior art hydrogels, e.g., carbomers, the poloxamer:poly(acrylic acid) polymer network composition does not permanently loose viscosity after being subjected to high shear conditions. The poloxamer:poly(acrylic acid) polymer network composition remains unaffected by such shear conditions as homogenization. Figure 4 compares the viscosity response curve of a 2 wt% poloxamer:poly(acrylic acid) polymer composition prepared with nominal mixing (simple line) and stirring with that of a polymer composition of similar composition .

prepared using high shear homogenization designated by a ticked line (8000 rpm, 30 min). No significant decrease in viscosity is observed.

A number of factors influence the viscosity and transition temperature of the composition. The more important factors include polymer concentration, pH, and presence and nature of additives.

The effect of pH on the viscosity of reversibly gelling polymer networks is shown in Figure 5. Increasing pH from the starting pH has a lesser effect on the viscosity than decreasing the pH. This may relate to the extent of ionization of the poly(acrylic acid) component of the polymer network as discussed above. This may be clearly seen in Figure 5 when comparing the viscosity response of a 1 wt% poloxamer:poly(acrylic acid) polymer composition at pH 5 and pH 11. Satisfactory viscosities can be obtained at high pHs indicating the potential value of the reversibly gelling polymer network in products such as depilatories, hair straighteners and hair relaxers.

The responsive polymer network may also include additives for influencing the performance of the polymer composition, such as the transition temperature and the viscosity of the polymer composition above the transition temperature. The following list is not intended to be exhaustive but rather illustrative of the broad variety of additives which can be used.

These materials include solvents (e.g., 2-propanol, ethanol, acetone, 1,2-pyrrolidinone, N-methylpyrrolidinone), salts (e.g., calcium chloride, sodium chloride, potassium chloride, sodium or potassium phosphates, borate buffers, sodium citrate), preservatives (benzalkonium chloride, phenoxyethanol, sodium hydroxymethylglycinate, ethylparaben, benzoyl alcohol, methylparaben, propylparaben, butylparaben, Germaben II), humectant/moisturizers (acetamide MEA, lactimide MEA, hydrolyzed collagen, mannitol, panthenol, glycerin), lubricants (hyaluronic acid, mineral oil, PEG-60-lanolin, PPG-12-PEG-50-lanolin, PPG-2 myristyl ether propionate) and surfactants.

Surfactants may be divided into three classes: cationic, anionic, and non-ionics.

An example of a cationic surfactant used is ricinoleamidopropyl ethyldimonium

ethosulfate (Lipoquat R). Anionic surfactants include sodium dodecyl sulfate and ether sulfates such as Rhodapex CO-436. Nonionic surfactants include Surfynol CT-111, TG, polyoxyethylene sorbitan fatty acid esters such as Tween 65 and 80, sorbitan fatty acid esters such as Span 65, alkylphenol ethoxylates such as Igepal CO-210 and 430, 5 dimethicone copolyols such as Dow Corning 190, 193, and Silwet L7001.

The addition of polymers has been studied including xanthan gum, cellulosics such as hydroxyethylcellulose (HEC), carbomethoxycellulose (CMC), lauryldimonium hydroxypropyl oxyethyl cellulose (Crodacel QL), hydroxypropylcellulose (HPC), and hydroxypropylmethylcellulose (HPMC), poly(acrylic acid), cyclodextrins, methyl 10 acrylamido propyl trimmonium chloride (MAPTAC), polyethylene oxide, polyvinylpyrrolidone, polyvinyl alcohol, and propylene oxide/ethylene oxide random copolymers. Poloxamers may also be used as additives. Examples include both the Pluronic® polyols having an $(P_1)_a(P_2)_b(P_1)_a$ structure such as Pluronic® F38, L44, P65, F68, F88, L92, P103, P104, P105, F108, L122, and F127, as well as the reverse 15 Pluronic® R series $(P_2)_a(P_1)_b(P_2)_a$ structure such as Pluronic® 17R2 and 25R8. Other miscellaneous materials include propyleneoxide, urea, triethanolamine, alkylphenol ethoxylates (Iconol series), and linear alcohol alkoxylates (Plurafac series).

Additives affect the viscosity of the compositions differently depending upon the nature of the additive and its concentration. Some additives will affect the initial or 20 final viscosity, whereas others will affect the temperature range of the viscosity response, or both.

Potassium chloride and acetamide MEA are two examples of additives which decrease the final viscosity of the composition (see Example 30). KCl (0.25%) added to a 1 wt% reversibly gelling polymer composition reduces the viscosity by about 3000 25 cps. See Figure 6. The humectant, acetamide MEA, lowers the viscosity of a 1 wt% solution by approximately 1, 500 cps (see Figure 7).

Glycerin, ethanol and dimethicone copolymer have been shown to affect the temperature range over which the viscosity response occurs. Glycerin shifts the transition temperature to a slightly lower range from an initial 24-34°C to about 24- 30 30°C, but does not affect the final viscosity (see Example 44). The effect of ethanol on

the viscosity is different at different concentration levels. At 5 wt% and 10 wt% added ethanol, the transition temperature is shifted to lower ranges, e.g., 24-29°C and 20-29°C, respectively. At 20 wt% added ethanol, the composition not only exhibits a lowering of the transition temperature, but also a marked increase in initial and final viscosity. See Figure 8. Dimethicone copolymer (1 wt%) also changed the transition temperature, but in this instance the transition temperature range was raised to 28-41°C. Thus, proper selection of additives permits the formulator to adjust the transition temperature to various ranges.

Those skilled in the art will appreciate that the polymer network compositions of the present invention may be utilized for a wide variety of cosmetic and personal care applications. To prepare a cosmetic composition, an effective amount of cosmetically active agent(s) which imparts the desirable cosmetic effect is incorporated into the reversibly gelling polymer network composition of the present invention. Preferably the selected agent is water soluble, which will readily lend itself to a homogeneous dispersion throughout the reversibly gelling polymer network composition; however, the polymer network has been demonstrated to significantly solubilize or suspend hydrophilic agents in order to improve formulation homogeneity (see Example 36). It is also preferred that the agent(s) is nonreactive with the polymer network composition. For materials which are not water soluble, it is also within the scope of the invention to disperse or suspend powders or oil (lipophilic materials) throughout the polymer network composition. It will also be appreciated that some applications may require a sterile environment. It is contemplated as within the scope of the invention that the reversibly gelling polymer network compositions of the present invention may be prepared under sterile conditions. An additional feature of the reversibly gelling polymer composition is that it is prepared from constituent polymers that have known accepted toxicological profiles.

The poloxamer:poly(acrylic acid) polymer network has been evaluated under Good Laboratory Practice (GLP) standard protocols known in the art for toxicity in animal models and found to exhibit no toxic effects. The results of the toxicity study

are summarized in the following Table 1. The non-toxicity of the polymer network makes it an ideal candidate for use in cosmetic compositions.

Table 1. Toxicity data for 6% poloxamer:poly(acrylic acid) solution at pH 7.

	Reaction Tests	Mode of Testing	Results
5	Skin sensitization	guinea pig - topical	not a sensitizer
	Eye irritation	rabbit - eye instillation	negative
	Primary dermal irritation	rabbit - topical	very slight edema (1 on a scale of 1-8)
	Acute dermal toxicity	rat - single dose (2g/kg)	no toxicity
	Acute oral toxicity	rat - single dose (5g/kg)	no toxicity
	AMES test		negative

Exemplary cosmetic and personal care applications, for which the reversibly gelling polymer network composition may be used include, but are not limited to, baby products, such as baby shampoos, lotions, powders and creams; bath preparations, such as bath oils, tablets and salts, bubble baths, bath fragrances and bath capsules; eye makeup preparations, such as eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover and mascara; fragrance preparations, such as colognes and toilet waters, powders and sachets; noncoloring hair preparations, such as hair conditioner, hair spray, hair straighteners, permanent waves, rinses, shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations such as hair dye, hair tints, hair shampoos, hair color sprays, hair lighteners and hair bleaches; makeup preparations such as face powders, foundations, leg and body paints, lipstick, makeup bases, rouges and makeup fixatives; manicuring preparations such as basecoats and undercoats, cuticle softeners, nail creams and lotions, nail extenders, nail polish and enamel, and nail polish and enamel remover; oral hygiene products such as dentrifrices and mouthwashes; personal cleanliness, such as bath soaps and detergents, deodorants, douches and feminine hygiene products; shaving preparations such as aftershave lotion, beard softeners, men's talcum, shaving cream, shaving soap and preshave lotions; skin care preparations such as cleansing preparations, skin antiseptics, depilatories, face and

neck cleansers, body and hand cleansers, foot powders and sprays, moisturizers, night preparations, paste masks, and skin fresheners; and suntan preparations such as suntan creams, gels and lotions, indoor tanning preparations.

Preparation of the above-named cosmetic compositions and others may be
5 accomplished with reference to any of the cosmetic formulation guidebooks and industry journals which are available in the cosmetic industry. These references supply standard formulations which may be modified by the addition or substitution of the reversible viscosifying polymer network of the present invention into the formulation. Suitable guidebooks include Cosmetics and Toiletries Magazine, Vo. 111 (March, 10 1996); Formulary: Ideas for Personal Care, Croda, Inc., Parsippany, NJ (1993); and Cosmeticon: Cosmetic Formulary, BASF, which are hereby incorporated in their entirety by reference.

The cosmetic composition may be in any form. Suitable forms include but are not limited to lotions, creams, sticks, roll-on formulations, mousses, aerosol sprays, 15 pad-applied formulations, and film-forming formulations.

As those skilled in the art will appreciate, the foregoing list is exemplary only. Because the reversibly gelling polymer network composition of the present invention is suited for application under a variety of physiological conditions, a wide variety of cosmetically active agents may be incorporated into and administered from the polymer 20 network composition. In addition to the poloxamer:poly(acrylic acid) polymer network, additional cosmetically acceptable carriers may be included in the composition, such as by way of example only, emollients, surfactant, humectants, powders and other solvents. By way of example only, the cosmetic composition also may include additional components, which serve to provide additional aspects of the 25 cosmetic affect or to improve the stability and/or administration of the cosmetic. Such additional components include, but are not limited to, preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, antioxidants, antiperspirants, antiseptics, antistatic agents, astringents, 30 binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents,

conditioners, deodorants, depilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glosser, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestratnt, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances. Suitable materials which serve the additive functions listed here are well known in the cosmetic industry. a listing of the additive function and materials suitable for incorporation into the cosmetic composition may be found in Appendix A, which is appended hereto at the end of the specification. Further information may be obtained by reference to The Cosmetic Bench Handbook, Cosmetics & Toiletries, C.C. Urbano, editor, Allured Publ. Corp., 1996, which is hereby incorporated in its entirety by reference.

A brief description of some preferred additives and cosmetically active agents follows. The compositions of the invention include a safe and effective amount of a cosmetically active agent. "Safe and effective", as it is used herein, means an amount high enough to significantly positively modify the condition to be treated or the cosmetic effect to be obtained, but low enough to avoid serious side effects.

Preservative can be desirably incorporated into the cosmetic compositions of the invention to protect against the growth of potentially harmful microorganisms. Suitable preservatives include, but are not limited to, alkyl esters of parahydroxybenzoic acid, hydantoin derivatives, parabens, propionate salts, triclosan tricarbanilide, tea tree oil, alcohols, farnesol, farnesol acetate, hexachlorophene and quaternary ammonium salts, such as benzolconjure, and a variety of zinc and aluminum salts. Cosmetic chemists are familiar with appropriate preservatives and may select that which provides the

required product stability. Preservatives are preferably employed in amounts ranging from about 0.0001% to 2% by weight of the composition.

Emollients can be desirably incorporated into the cosmetic compositions of the invention to provide lubricity to the formulation. Suitable emollients may be in the form of volatile and nonvolatile silicone oil, highly branched hydrocarbons and synthetic esters. Amounts of emollients may be in the range of about 0.1-30 wt%, and preferably about 1-20 wt%. By way of example only, suitable silicones include cyclic or linear polydimethylsiloxanes, polyalkylsiloxanes, polyalkylarylsiloxanes and polyether siloxanes. By way of example only, suitable ester emollients include alkenyl esters of fatty acids, polyhydric alcohols, such as ethyleneoxide mono and di-fatty acid esters, polyethyleneoxide and the like, ether-esters, such as fatty acid esters of ethoxylated fatty alcohols, wax esters, such as beeswax, spermaceti, myristyl myristate and stearyl stearate, and sterol esters such as cholesterol fatty acids.

A variety of oily emollients may be employed in the compositions of this invention. These emollients may be selected from one or more of the following classes:

1. Triglyceride esters such as vegetable and animal fats and oils. Examples include castor oil, cocoa butter, safflower oil, cottonseed oil, corn oil, olive oil, cod liver oil, almond oil, avocado oil, palm oil, sesame oil, squalene, Kikui oil and soybean oil; 2. Acetoglyceride esters, such as acetylated monoglycerides; 3. Ethoxylated glycerides, such as ethoxylated glyceryl monostearate; 4. alkyl esters of fatty acids having 10 to 20 carbon atoms, such as, methyl, isopropyl, and butyl esters of fatty acids, and including hexyl laurate, isohexyl laurate, isohexyl palmitate, isopropyl palmitate, decyl oleate, isodecyl oleate, hexadecyl stearate, decyl stearate, isopropyl isostearate, diisopropyl adipate, diisohexyl adipate, dihexyldecyl adipate, diisopropyl sebacate, lauryl lactate, myristyl lactate, and cetyl lactate; 5. Alkenyl esters of fatty acids having 10 to 20 carbon atoms, such as oleyl myristate, oleyl stearate, and oleyl oleate and the like; 6. Fatty acids having 10 to 20 carbon atoms, such as pelargonic, lauric, myristic, palmitic, stearic, isostearic, hydroxystearic, oleic, linoleic, ricinoleic, arachidic, behenic, and erucic acids and the like; 7. Fatty alcohols having 10 to 20 carbon atoms, such as, lauryl, myristyl, cetyl, hexadecyl, stearyl, isostearyl, hydroxystearyl, oleyl,

ricinoleyl, behenyl, erucyl, and 2-octyl dodecanyl alcohols are examples of satisfactory fatty alcohols and the like; 8. Fatty alcohol ethers, such as ethoxylated fatty alcohols of 10 to 20 carbon atoms including the lauryl, cetyl, stearyl, isostearyl, oleyl, and cholesterol alcohols, having attached thereto from 1 to 50 propylene oxide groups; 9.

5 Ether-esters such as fatty acid esters of ethoxylated fatty alcohols; 10. lanolin and derivative, such as lanolin, lanolin oil, lanolin wax, lanolin alcohols, lanolin fatty acids, isopropyl lanolate, ethoxylated lanolin, ethoxylated lanolin alcohols, ethoxylated cholesterol, propoxylated lanolin alcohols, acetylated lanolin alcohols, lanolin alcohols linoleate, lanolin alcohols ricinoleate, acetate of lanolin alcohols ricinoleate, acetate of 10 ethoxylated alcohols-esters, hydrogenolysis of lanolin, ethoxylated hydrogenated lanolin, ethoxylated sorbitol lanolin, and liquid and semisolid lanolin absorption bases and the like; 11. Polyhydric alcohol esters, such as, ethylene glycol mono and di-fatty acid esters, diethylene glycol mono- and di-fatty acid esters, polyethylene glycol (200-6000) mono- and di-fatty acid ester, propylene glycol mono- and di-fatty acid esters,

15 15. polypropylene glycol 2000 monooleate, polypropylene glycol 2000 monostearate, ethoxylated propylene glycol monostearate, glyceryl mono- and di-fatty acid esters, polyglycerol polyfatty esters, ethoxylated glyceryl monostearate, 1,2-butylene glycol monostearate, 1,2-butylene glycol distearate, polyoxyethylene polyol fatty acid ester, sorbitan fatty acid esters, and polyoxyethylene sorbitan fatty acid esters are satisfactory

20 20. polyhydric alcohol esters; 12. Waxes such as beeswax, spermaceti, myristyl myristate, steryl stearate; 13. Beeswax derivatives, e.g., polyoxyethylene sorbitol beeswax; 14. Vegetable waxes including carnauba and candelilla waxes; 15. Phospholipids such as lecithin and derivatives; 16. Sterol including cholesterol and cholesterol fatty acid esters; 17. Amides such as fatty acid amides, ethoxylated fatty 25 25. acid amides, solid fatty acid alkanolamides.

Humectants may be added to the composition to increase the effectiveness of the emollient, to reduce scaling, to stimulate removal of built-up scale and improve skin feel. By way of example only, suitable humectants include polyhydric alcohols, such as glycerol, polyalkylene glycols, alkylene polyols, their derivatives, propyleneoxide, 30 dipropyleneoxide, polypropyleneoxide, polyethyleneoxide, sorbitol, hydroxypropyl

sorbitol, hexylene glycol, 1,3-butylene glycol, 1,2,6-hexanetriol, ethoxylated glycerol, propoxylated glycerol and the like. The amount of humectant may be in the range of about 0.5-30 wt% and preferably between 1-15 wt%.

In topical skin care applications, a variety of active substances may be advantageously employed. by way of example, only suitable active agents which may be incorporated into the cosmetic composition include anti-aging active substances, anti-wrinkle active substances, hydrating or moisturizing or slimming active substances, depigmenting active substances, substances active against free radicals, anti-irritation active substances, sun protective active substances, anti-acne active substances, firming-up active substances, exfoliating active substances, emollient active substances, and active substances for the treating of skin disorders such as dermatitis and the like.

By way of example only, in the case of hydration, one or more moisturizers may be used, such as glycerin or urea, in combination with one or more precursor agents for the biosynthesis of structural proteins, such as hydroxyproline, collagen peptides, and the like.

By the way of example only, in case of slimming, at least one ketolytic agent or an alpha-hydroxyacid such as a salicylic acid or 5-n-octanoic salicylic acid may be used in combination with at least one liporegulating agent such as caffeine.

By way of example only, in the case of depigmentation, at least one keratolytic agent is used in combination with a depigmenting agent such as hydroquinone, tyrosinase inhibitor (kasic acid), kojic acid and sodium metabisulfite and the like.

By way of example only, in the case of protection against free radical agents, vitamin E (against CO₂ radicals), superoxide dismutase (against O₂ free radicals) and sugar and caffeine (against OH free radicals).

By way of example only, in the case of anti-aging, moisturizers, sunscreens, alpha-hydroxyacids, salicylic acid or surface restructuring agents may be used in combination with enzymes for the repair of DNA, vascular protective agents or phospholipids rich in oligoelements and polyunsaturated fatty acids.

By way of example only, in the case of anti-acne agents, keratolytics, such as salicylic acid, sulfur, lactic acid, glycolic, pyruvic acid, urea, resorcinol and N-acetylcysteine, and retinoids, such as retinoic acid and its derivatives may be used.

By way of example only, in the case of anti-inflammation, non-steroidal anti-inflammatory agents (NSAIDS) may be used, such as propionic acid derivatives, acetic acid, fenamic acid derivatives, biphenylcarboxylic acid derivatives, oxicams, including but not limited to aspirin, acetaminophen, ibuprofen, naproxen, benoxaprofen, flurbiprofen, fenbufen, ketoprofen, indoprofen, pirprofen, carprofen, and bucloxic acid and the like.

By way of example only, in the case of antibiotic and antimicrobials may be included in the composition of the invention. Antimicrobial drugs preferred for inclusion in compositions of the present invention include salts of β -lactam drugs, quinolone drugs, ciprofloxacin, norfloxacin, tetracycline, erythromycin, amikacin, triclosan, doxycycline, capreomycin, chlorhexidine, chlortetracycline, oxytetracycline, clindamycin, ethambutol, hexamidine isethionate, metronidazole, pentamidine, gentamicin, kanamycin, lineomycin, methacycline, methanamine, minocycline, neomycin, netilmicin, paromomycin, streptomycin, tobramycin, miconazole and amanfadine and the like.

By way of example only, in the case of sunscreen protection, suitable agents include 2-ethylhexyl p-methoxycinnamate, 2-ethylhexyl N,N-dimethyl-p-aminobenzoate, p-aminobenzoic acid, 2-phenyl p-methoxycinnamate, 2-ethylhexyl octocrylene, oxybenzone, homomenthyl salicilate, octyl salicylate, 4,4'-methoxy-t-butylbibenzoylmethen, 4-isopropyl dibenzoylmethane, 3-benzylidene camphor, 3-(4-methylbenzylidene) camphor, titanium dioxide, zinc oxide, silica, iron oxide, and mixtures thereof and the like. The sunscreening agents disclosed therein have, in a single molecule, two distinct chromophore moieties which exhibit different ultra-violet radiation absorption spectra. One of the chromophore moieties absorbs predominantly in the UVB radiation range and the other absorbs strongly in the UVA radiation range. These sunscreening agents provide higher efficacy, broader UV absorption, lower skin penetration and longer lasting efficacy relative to conventional sunscreens. Generally,

the sunscreens can comprise from about 0.5% to about 20% of the compositions useful herein. Exact amounts will vary depending upon the sunscreen chosen and the desired Sun Protection Factor (SPF). SPF is a commonly used measure of photoprotection of a sunscreen against erythema.

5 By way of example only, in the case of sunless tanning agents include, dihydroxyacetone, glyceraldehyde, indoles and their derivatives, and the like.

The composition may include cleansing surfactants. Cleansing surfactants are cationic, anionic, amphoteric or non-ionic surfactants which are water-soluble and produce a consumer-acceptable amount of foam. Non-ionic surfactants are well-known materials and have been used in cleansing compositions. Therefore, suitable non-ionic surfactants include, but are not limited to, compounds in the classes known as alkanolamides, block copolymers of ethylene and propylene, ethoxylated alcohols, ethoxylated alkylphenols, alkyl polyglycosides and mixtures thereof. In particular, the non-ionic surfactant can be an ethoxylated alkylphenol, i.e., a condensation product of an alkylphenol having an alkyl group containing from about 6 to about 12 carbon atoms in either a straight chain or branched chain configuration with ethylene oxide, the ethylene oxide being present in an amount equal to at least about 8 moles ethylene oxide per mole of alkylphenol. Examples of compounds of this type include nonylphenol condensed with about 9.5 moles of ethylene oxide per mole of phenol; dodecylphenol condensed with about 12 moles of ethylene oxide per mole of phenol; dinonylphenol condensed with about 15 moles of ethylene oxide per mole of phenol; octylphenol condensed with about ten moles of ethylene oxide per mole of phenol; and diisooctyl phenol condensed with about 15 moles of ethylene oxide per mole of phenol.

A wide variety of acids, bases, buffers, and sequestrants can be utilized to adjust and/or maintain the pH and ionic strength of the compositions useful in the instant invention. Materials useful for adjusting and/or maintaining the pH and/or the ionic strength include sodium carbonate, sodium hydroxide, hydrochloric acid, phosphoric acid, sulfuric acid, acetic acid, sodium acetate, sodium hydrogen phosphate, sodium dihydrogen phosphate, citric acid, sodium citrate, sodium bicarbonate, triethanolamine, EDTA, disodium EDTA, tetrasodium EDTA, and the like.

The polymer network may be useful as a solubilization agent in cosmetic and personal care applications. A self-assembling system comprising the reversibly gelling polymer network exhibits thermogelation, pH sensitivity, and the ability to solubilize hydrophobic agents in aqueous media. When poloxamer is copolymerized with

5 poly(acrylic acid) (PAA) according to the invention, the resulting copolymer network is bioadhesive and can be applied in a number of therapies. The materials described in this invention combine "reverse" thermoviscosification mucoadhesion, solubilization of hydrophobic and difficult to manage moieties, easy formulation, and protection of agents from degradation to provide a superior medium for cosmetic and personal care

10 products.

The reversible viscosification of the polymer network at elevated temperatures makes the materials idea for use as thickening agents in cosmetic and personal care products at any temperature above the transition. Another use of the "thickening" of solutions containing the polymer network as a thickener supplement in emulsions.

15 Currently, emulsifiers are often negatively affected by increased temperatures. An additive with reverse thermal viscosification properties, however, would react in exactly the opposite way, increasing its ability to emulsify as it gained three-dimensional structure upon heating above its transition temperature.

In the applications where the reversibly gelling polymer composition can act as

20 a surfactant, the polymer network will have the ability to act as a primary emulsifier without any (or with very little) addition of traditional surfactant. The responsive polymer network will also act as a stabilizer for oil soluble ingredients that would conventionally need to be solubilized by oils in formulation. The hydrophobic portion of the polymer network (PPO) forms domains which act as reservoirs for an oil-soluble

25 or hydrophobic additive, such as an oil droplet, as is illustrated in Figure 9. These two features of the material of the invention would enable it to be used as a base in a cosmetic formulation that would be non-greasy due to lack of oils, such as petrolatum and mineral oil. The increase in viscosity above the transition temperature adds structure and yield value to the water phase and results in a highly stable emulsion.

Thus, poloxamer:poly(acrylic acid) polymer network compositions are valuable materials in the formulation of cosmetic and personal care products. In particular, they may be useful as rheology modifiers, provide a cushioning effect on the skin, offer barrier properties and controlled release of actives. In addition, the polymer

5 composition may serve as a surfactant and is compatible with most ingredients used in the cosmetic industry.

The above properties of the poloxamer:poly(acrylic acid) polymer network provides a cosmetic composition that spreads evenly and smoothly and which leaves a lubricious feel to the skin. A sensory evaluation was conducted with seven random

10 volunteers in order to determine the sensory effect of a cream formulation on the skin. An oil-free cosmetic formulation was prepared substantially as set forth in Example 33(b) and was compared to Nivea Oil Free, a product of Beiersdorf of Germany. Volunteers placed unmarked samples on the skin and evaluated the formulation based upon its feel and texture. The samples were rated on a scale of 1 (bad) to 5 (good).

15 The oil-free cosmetic formulation of the present invention scored equally to the Nivea Oil Free moisturizing product. Both samples scored a 3.5 on the rating scale.

The observed thermal behavior of the reversibly gelling polymer network suggests that the increase in viscosity is due to aggregation of the hydrophobic portion of the poloxamer at the transition temperature which, because of bonding with the

20 poly(acrylic acid) component, serve as temporary cross-links which physically bridge adjacent chains of poly(acrylic acid) to provide a viscous gel-like extended polymer structure. The aggregation process may be understood as occurring as shown in Figure 10, in which a backbone 20 represent poly(acrylic acid), a thin band 24 represents the hydrophobic poly(propylene) glycol region of the poloxamer and a thick band 26

25 represents the hydrophilic poly(ethylene glycol) region of the poloxamer. Below the transition temperature, the polymer network is randomly arranged, as is shown in Figure 10(a). At or above the transition temperature, the hydrophobic regions 24 associate to form aggregations or micelles 28, as is shown in Figure 10(b). The association increases the effective molecular weight of the polymer network

30 composition with the corresponding increase in viscosity.

A general method of making the poloxamer:PAA polymer network compositions of the present invention comprises solubilization of the poloxamer in acrylic acid monomer, followed by polymerization of the monomer to PAA. Polymerization may be accomplished by addition of a polymerization initiator or by irradiation techniques.

5 The initiator may be a free radical initiator, such as chemical free radical initiators and UV or gamma radiation initiators. Conventional free radical initiators may be used according to the invention, including, but in no way limited to ammonium persulfate, benzoin ethyl ether, benzyl peroxide, 1, 2'-azobis(2,4-dimethylpentanitrile) (Vazo 52) and azobisisobutyronitrile (AIBN). Initiation may also be accomplished using cationic
10. or ionic initiators. many variations of this method will be apparent to one skilled in the art and are contemplated as within the scope of the invention. For example, the poloxamer component may be dissolved in an acrylic acid/water mixture instead of pure monomer. It may be desirable to remove unreacted monomer and/or free poloxamer from the resultant polymer network. This may be accomplished using conventional
15. techniques, such as, by way of example, dialysis or soxlet extraction.

Without intending to be bound by a particular mechanism or structure, the following scheme represents a possible chemical mechanism for the formulation of the system here described. These mechanisms are presented by way of explanation and are no way limiting of the invention. It is contemplated that these or other mechanistic
20. routes may in fact occur in the formation of the polymer network of the present invention.

I. Initiation

$RR \rightarrow 2R\cdot$ (1)

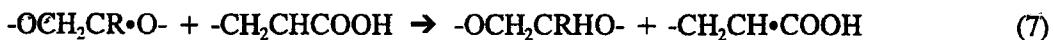
$R\cdot + CH_2=CHCOOH \rightarrow RCH_2CH\cdot COOH$ (2)

25 II. Hydrogen Abstraction

$R\cdot + -OCHRCH_2O^- \rightarrow RH + -OCR\cdot CH_2O^-$
(3)

$R\cdot + -CH_2CH_2COOH^- \rightarrow RH + -CH_2CH\cdot COOH$
(4)

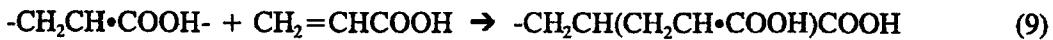
30 III. Chain Transfer



IV. Propagation



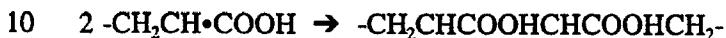
5 V. Side Chain Branching Off AA Backbone



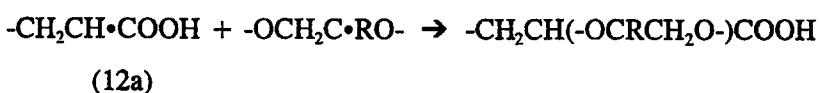
VI. AA Branching Off Poloxamer Backbone



VII. Homogenous Termination



VIII. Heterogenous Termination with Bonding of Pluronic to PAA



15

The scheme for bonding of poloxamer to acrylic acid may involve initiation (Eq. 1), hydrogen abstraction from the propylene or ethylene moiety of the poloxamer (Eq. 3), and attachment to acrylic acid via addition across the unsaturated bond (Eq. 10). Propagation (Eq. 8) leads to the final PAA.

20

Alternatively, the mechanism may proceed by initiation according to Eqs. (1) and (2), propagation to form PAA (Eq. 8), a chain transfer reaction to generate a reactive poloxamer moiety (Eq. 5), followed by addition of the reactive poloxamer moiety to the unsaturated bond of acrylic acid (Eq. 10) and subsequent propagation of the PAA chain.

25

Thus, the polymer network may include a plurality of poly(acrylic acid) units bounded to a single poloxamer unit, or alternatively, a plurality of poloxamer units bound to a single PAA backbone. Combinations of these alternatives are also a possibility.

Reverse phase polymerization may be used to prepare polymer network beads
30 by dispersion of the poloxamer and acrylic acid monomer mixture in a nonpolar solvent

such as hexane or heptane. The aggregating polymer/monomer solution is dispersed with agitation in the nonpolar solvent in order to suspend droplets of the solution. Polymerization of the monomer is initiated by conventional means (i.e., addition of an initiator or irradiation) in order to polymerize the monomer and form responsive

5 polymer network beads. See U.S.S.N. 08/276,532 filed July 18, 1995 and entitled "Useful Responsive Polymer Gel Beads" for further information on the preparation of polymer gel beads, herein incorporated by reference. Such a method may be particularly desirable to provide a heat sink for the heat generated in the exothermic polymerization reaction.

10 The polymer network complexes and aqueous gelling solutions of the present invention may be understood with reference to the following examples, which are provided for the purposes of illustration and which are in no way limiting of the invention.

15 Example 1. This example describes the synthesis of a polymer network and an aqueous responsive polymer network solution prepared using a triblock polymer of poly(ethyleneoxide) and poly(propyleneoxide), Pluronic® F27 polyol, and poly(acrylic acid). This example also characterizes the gelation and the physical properties of the resultant polymer network.

Synthesis. Block copolymer of poly(propyleneoxide) (PPO) and poly(ethyleneoxide) (PEO) having triad ABA structure (PEO)_A(PPO)_B(PEO)_A (Pluronic® F127 NF polyol, Poloxamer 407 NF polyol, where "F" means Flakes, "12" means 12X300=3600 - MW of the PPO section of the block copolymer, "7" PEO in the copolymer is 70 wt%, and nominal molecular weight is 12,600) from BASF (3.0 g) was dissolved in 3.0 g acrylic acid (Aldrich). This represents a substantially 1:1 weight ratio of Pluronic® F127 polyol and poly(acrylic acid). The solution was deaerated by N₂ bubbling for 0.5 h and following addition of 100 ml of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer.

30 Viscosity measurements. A known amount of the resultant polymer was suspended in 100 ml deionized water into which NaOH was added. Following swelling

for 3 days while stirring, the pH of the resulting fine suspension was adjusted to 7. Samples of 15 ml each were taken, and pH in each vial was adjusted to desired value by addition of 1 M HCl or NaOH. Samples were then kept overnight and their viscosities were measured at different temperatures using Brookfield viscometer using either an

5 SC4-18 or an SC4-25 spindle.

A control experiment was done with a physical blend of Pluronic® F127 polyol and poly(acrylic acid) (MW 450,000) available from Aldrich. Pluronic® F127 polyol and poly(acrylic acid) were dissolved together in deionized water at 1 wt% total polymer concentration and the resultant solution was adjusted to pH 7, stirred and kept

10 in refrigerator. The responsiveness of the polymer network composition and the physical blend to temperature and pH is illustrated in figs. 1, 11, and 12. Figs. 1 and 2 clearly demonstrate that the synthetic route outlined above resulted in a polymer network system that is sensitive to pH and temperature of the environment. Note that the liquid-gel transition is very sharp, occurring over a very small temperature change
15 of pH (see Figure 11). Figure 12 is a viscosity vs. temperature graph comparing the gelling characteristics of the responsive polymer network composition and the physical blend. The blend prepared by physically mixing the triblock PEG/PPG/PEG polymer and poly(acrylic acid) did not exhibit viscosifying effect either as a function of temperature or pH.

20 It was generally observed that 0.5 - 5 wt% polymer network compositions made of Pluronic® F127 polyol and poly(acrylic acid) viscosify at temperatures of around 30°C and higher if pH is adjusted to 6 or higher. The gelling effect was observed in polymer network compositions standing 3 months or longer. Repeated heating and cooling of responsive polymer network compositions did not cause deterioration of the
25 polymer network or the gelling effect. Solutions of either Pluronic® F127 polyol or poly(acrylic acid) (1-5 wt% in water, adjusted to pH 6 or higher) or physical blends of the two lacked the reverse thermal gelling effects found for polymer network compositions.

Example 2. this example describes a standard operating procedure for the
30 manufacture of the reversible gelling polymer network.

The procedure is based upon a 50 liter production. A NaOH solution was prepared by dissolving 131.8 g NaOH pellets in 131.8 mL DI water (50% solution). The NaOH was allowed to dissolve completely. The NaOH solution will be used to convert a percentage of the acrylic acid to sodium acrylate in situ. Acrylic acid monomer (4 kg) is charged into a monomer feed tank and agitated at 250 rpm. NaOH is added slowly. The precipitate formed as the acrylic acid is neutralized to sodium acrylate is allowed to dissolve. Pluronic® F 127 (3.5 kg) is slowly added to the monomer feed tank. Pluronic® F127 is dissolved under continued agitation. Norpar 12 (a refined C-12 alkane) is added to the reaction vessel (37 L). The mixture is agitated at 100 rpm. Stabilizer solution of Ganex V-126 is prepared in 2L Norpar 12 and added to the reactor under agitation.

A reaction vessel was degassed using a nitrogen sparge introduced from the bottom of reactor and was continued throughout the reaction. Initiator (13.63 g Lauryl peroxide and 4.23 g Vazo 52 in 0.7 kg acrylic acid monomer) is introduced into the monomer solution. the monomer solution was transferred to the reaction vessel. Agitation was increased to 150 rpm. Nitrogen sparging continued for an additional 20 minutes, and then heating began. heating began at a rate of 0.5 -1.0°C/min up to 75°C. The reaction began to exotherm at about 45-50°C and is allowed to continue without cooling until a maximum is reached. It is then cooled to 75°C using forced cooling. The reaction continued for 12 hours and was then cooled to 35°C. The slurry was transferred into pails and the polymer beads were allowed to settle.

The slurry was filtered through Buchner Funnels with filter paper (11 µm pore size) until the bulk of the Norpar had been removed from the beads. The beads were washed three times with heptane. The filtered beads were transferred to a Pyrex drying tray and spread on the tray in a uniform layer. The beads were dried under vacuum for 4 hours at 40-50°C. The dried beads were analyzed as follows.

Elemental analysis. The elemental analysis was performed by Quantitative Technologies, Inc., Whitehouse, NJ using a Perkin Elmer 2400 CHN Elemental Analyzer. Analysis provided C (52.49%), H (7.50%), N (<0.05%), the balance assumed to be oxygen (39.96%).

Thermal Gravimetric Analysis (TGA). The TGA method was performed by Massachusetts Material Research, Inc., West Boylston, MA using a Dupont TGA model 295. The assay was run using a temperature ramp from 30 to 500°C/min. The resolution for the system was set to 4 (1.0°C/min for all slope changes). The data was 5 analyzed using the first derivative of the curve and using maxima and minima to mark transitions. The moisture content was also calculated in this manner. The first derivative yielded three maxima. The first transition (moisture) was 3.0% by weight, the second transition was 14.0% by weight, and the third was 67.02% by weight. Residue (15.98%) remained.

10 Molecular weight determination by gel permeation chromatography (GPC). The molecular weight was determined by GPC on a Hewlet Packard 1100 Liquid Chromatography system with a Viscotech T60 Triple Detector system. Three Waters Ultrahydrogel columns, 1000, 500 and 250 Å, were used for the separation. The mobile phase was 0.1 M NaNO₃ and 0.01 M K₂HPO₄ salt solution, pH adjusted with 15 phosphoric acid to a pH of 8.0 ± 0.1. the flow rate for the separation was 0.9 mL/min. The column temperature was maintained at 15°C. The injection volume for the assay was 50 µL. A PEG molecular weight standard of 23,000 Daltons was used to align the detectors. The result for the assay were:

20 M_n: 341,700 Daltons
 M_p: 1,607,000 Daltons
 M_w: 2,996,000 Daltons

25 Free poloxamer determination by GPC. The amount of free (unbound) poloxamer in the polymer matrix was determined using the above GPC method and comparing the poloxamer peaks to that of a standard poloxamer solution. The typical result is approximately 18-22% free poloxamer by weight.

30 The effect of both the bonded and non-bonded poloxamer on the gelation properties of the responsive polymer network has been determined by extraction of the non-bonded poloxamer from the material. Such extraction studies have established that the graft co-polymer alone exhibits the characteristic reverse thermal gelation of the composition; however, the presence of non-bonded poloxamer component modulates

the gelation process. The non-bonded poloxamer component can affect the temperature of transition (from liquid to gel) and the degree of transition and assists in a more controlled and reproducible transition.

Bound poloxamer determination by ethylene oxide (EO) titration. The EO titration was performed as follows. A 5 gm sample of the product polymer was extracted in dichloroethane for three hours at reflux temperatures. The solid is removed and dried under a vacuum for 12 hours at room temperature. The dry material is then analyzed using ASTM method D 2959-95, "Standard Test Method for Ethylene Oxide Content". The amount of EO in the sample is related to the amount of poloxamer bound to the polymer. The typical result is approximately 15% by weight of EO.

The relative amount of free poloxamer may be varied dependent upon the relative proportions of starting materials and the method of polymerization. Although the residual solids presumably contain only poloxamer which is bounded to the poly(acrylic acid), i.e., a graft co-polymer, the material still shows strong viscosification when it is neutralized and dissolved in water. However, the temperature of viscosification is increased substantially and the degree of viscosification per gram of total solids is increased by removal of free poloxamer. Thus, the free poloxamer plays a role in modifying the extent and temperature of viscosification. The poloxamer undergoes conformational changes and changes to the critical micelle concentration as a function of temperature. The poloxamer will change from an open, non-aggregated form to a micellar, aggregated form with changes in temperature.

Residual acrylic monomer determination by gas chromatography (GC). The residual acrylic acid monomer was determined by GC analysis using a Hewlet Packard GC 5890A, using a HP-FFDAP-TPA 10 m x 0.52 mm x 1 μm column. The sample was extracted and run in methanol. Using an internal standard ratio, the sample was compared to a one point calibration. The typical results for this assay were below 70 ppm acrylic acid monomer.

Residual Norpar solvent by GC. The residual Norpar in the sample was determined by GC using the above method and comparing the Norpar peaks to that of a standard. The typical results were below 1.5 wt%.

UV-vis spectrum. Optical clarity data of UV-vis spectrophotometer was obtained. A 1.0% solution in water was prepared and measured at 420 nm. Transmittance (%) was typically greater than 90%.

Differential scanning calorimetry (DSC). The DSC was performed by 5 Massachusetts Material Research, Inc., West Boylston, MA using a temperature ramp from 30 to 350°C at 5°C/min. The resolution for the system was set to 4 (1.0°C/min for all slope changes). The assay yielded one endothermic event at 265°C, typically 270 J/g.

10 Examples 3-9. These examples describe the synthesis of several reversible thermal gelling polymer networks prepared using a variety of poloxamers and poly(acrylic acid). The gelation and the physical properties of the resultant polymer network compositions are reported in Table 2.

Table 2

	Example	Poloxamer	Poloxamer Composition	Poloxamer: PAA	Trans. Temp.	Comments
15	3	Pluronic® F88 Prill polyol	2400 MW PPO; 80 wt% PEO; nominal MW 11,400	1:1	48°C	viscosity response curve shown in Figure 13
	4	Pluronic® F127 NF polyol	3600 MW PPO; 70 wt% PEO; nominal MW 12,600	1:1	30°C	pentaerythritol triallyl ether crosslink agent used
	5	Pluronic® P104 polyol	3000 MW PPO; 40 wt% PEO; nominal MW 5,900	1:1	28°C	viscosity response curve shown in Figure 14
	6	Pluronic® P123 polyol	3600 MW PPO; 30 wt% PEO; nominal MW 5,750	1:1	25°C	viscosity response curve shown in Figure 15
	7	Pluronic® F127/ Pluronic® F108 polyol blend (1:1)	as above	1:1.7	42°C	polymer solid formed, dried; resolubilized in neutralizing solution
	8	Pluronic® F88 polyol	as above	1:1.7	80°C	polymer solid formed, dried; resolubilizing in neutralizing solution
	9	Pluronic® F127/ Pluronic® F88 polyol blend (1:1)	as above	1:1.7	85°C	polymer solid formed, dried; resolubilizing in neutralizing solution

Example 10. The following example demonstrates the effect of hydrophilic/hydrophobic ratio on the gelling temperature. Polymer network compositions were prepared from the following poloxamers shown in Table 3.

5

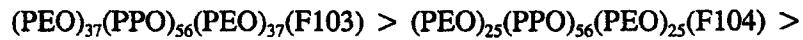
Table 3. Composition of Poloxamers Investigated.

triblock polyol polymer composition	MW of PPO block	wt% of PEO block
P103 (PEO) ₃₇ (PPO) ₅₆ (PEO) ₃₇	3250	50
P104 (PEO) ₂₅ (PPO) ₅₆ (PEO) ₂₅	3250	40
P105 (PEO) ₁₆ (PPO) ₅₆ (PEO) ₁₆	3250	30

15 Table 3 shows that in this series, the fraction of PEO is reduced when the molecular weight of the PPO block is kept constant. Linse (*Macromol.* **26**:4437-4449 (1993)) report phase diagrams for these copolymers in water were calculated and it was shown that two-phase boundaries corresponding to the beginning of aggregation are almost unaffected by the molecular mass, given a constant PEO/PPO ratio, whereas
20 these boundaries shifted to lower temperature as the PEO content of the polymer is reduced at constant mass. The strong dependence of the PEO/PPO ratio is a consequence of the differing solubilities of PEO and PPO in water at the elevated temperatures. Thus, one would suppose that aggregation that causes viscosification in the responsive polymer network composition should shift to lower temperature as PEO
25 fraction decreases.

The poloxamer (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N₂ bubbling for 20 min. and following addition of the 100:1 of freshly prepared saturated solution of ammonium persulfate in deionized water was kept at 70°C for 16 h resulting in a strong whitish polymer. A sample of the polymer obtained
30 (0.4 g) was suspended in 40 ml deionized water into which NaOH was added. Suspended responsive polymer network particles were allowed to dissolve under constant stirring. The resulting 1 wt% polymer network solution were subjected to the

viscosity measurement at shear rate of 132 or 13.2 sec⁻¹ using a SC4-18 spindle. It can be seen from Figure 16 that, firstly, viscosity of the 1 wt% responsive polymer network solutions before viscosification (at 20-24°C) decreases in the series



5 (PEO)₁₆(PPO)₅₆(PEO)₁₆(F105) and, secondly, the temperature at which gelation shifts from about 45°C for (PEO)₃₇(PPO)₅₆(PEO)₃₇ to about 35°C for (PEO)₂₅(PPO)₅₆(PEO)₂₅ and (PEO)₁₆(PPO)₅₆(PEO)₁₆. Both results are in excellent agreement with the theory set forth in Linse.

Example 11. The following example is related to release of an active agent
10 from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein hemoglobin from poloxamer:poly(acrylic acid) polymer network is described.

Synthesis. Pluronic® F127 (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N₂ bubbling for 0.5 h and following addition of 100 Fl of
15 freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer. The resultant responsive polymer network obtained (5 g) was suspended in 95 ml deionized water into which NaOH was added. The resulting suspension was allowed to swell for 7 days.

Hemoglobin loading and release. A 5 wt% responsive polymer network
20 composition (3 g) was allowed to swell for 16 h in 10 ml of 0.25 mg/ml solution of human hemoglobin (Sigma) in deionized water adjusted to pH 8. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was
25 continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the hemoglobin-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 0.25 mg/ml hemoglobin solution. After the feed solution had been loaded into the cell,
30 the kinetic time commenced. Samples of the receiver phase were withdrawn from time

to time and their absorbance was measured spectrophotometrically at 400 nm. To calculate hemoglobin concentrations, corresponding calibration curves (absorbance in PBS versus hemoglobin concentration) were generated. The results of the kinetic experiment are presented in Figure 17. It can be seen that the rate of hemoglobin release from the polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in the polymer network at elevated temperatures (see Figure 1). The protein released from the polymer network composition still retained its native structure, as was determined by comparison of UV-vis spectra of release hemoglobin and natural hemoglobin.

10 Example 12. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein lysozyme from a polymer network is reported.

15 Lysozyme loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 1 mg/ml solution of chicken egg-white lysozyme (Sigma) and 1.5 mg/ml sodium dodecyl sulfate (Aldrich) in deionized water adjusted to pH 8.5. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the lysozyme-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 1 mg/ml lysozyme solution. After the feed solution had been loaded into the cell, the kinetic time commenced.

20 Samples were withdrawn and their absorbance measured spectrophotometrically at 280 nm. A calibration curve was prepared for lysozyme concentration ranging from 0 mg/ml to 0.5 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 18. It can be seen that the rate of lysozyme release from the responsive polymer network composition was substantially lowered at 37°C when

compared to that at 25°C, because of viscosity increase in responsive polymer network at elevated temperatures (see Figure 1).

In order to demonstrate the retention of the enzymatic activity of lysozyme, the lysozyme released from the responsive polymer network composition was assayed using

5 Micrococcus lysodeikticus cells and compared to that of original lysozyme. The enzymatic activity of lysozyme was the same, within the error of the assay (15%), as that of the original lysozyme. Control without lysozyme in presence of sodium dodecyl sulfate did not show any appreciable lysis of the cells.

Example 13. The following example is related to release of an active agent
10 from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of insulin from a responsive polymer network composition is reported.

Insulin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 15 h in 10 ml of 5 mg/ml solution of bovine Zn²⁺-insulin (Sigma) in deionized water adjusted to pH 7. The resulting mixture was well shaken
15 and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the insulin-loaded responsive polymer
20 network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 5 mg/ml insulin solution. After the feed solution had been loaded into the cell, the timing commenced. Samples were withdrawn and their absorbance was measured spectrophotometrically at 280 nm. A calibration curve was prepared for insulin concentration ranging from 0 mg/ml to 1.25
25 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 19. The rate of insulin release from responsive polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in responsive polymer network at elevated temperatures (see Figure 1).

Example 14. This example demonstrates the preparation of a sterile reversibly
30 gelling polymer network aqueous composition and the stability of the composition to

sterilization. The polymer network is prepared as described in Example 1, except that the composition is prepared at 2 wt% Pluronic® F127 polyol/poly(acrylic acid). After dissolution of the 2 wt% polymer network in water, the viscosity is measured. The composition then is sterilized by autoclaving at 121°C, 16 psi for 30 minutes.

5 Viscosity is determined after sterilization. The corresponding curves for viscosity (a) before and (b) after sterilization are shown in Figure 20 and establish that minimal change in the viscosity profile of the material has occurred with sterilization.

Examples 15-30. These examples show additives which may be used to affect the transition temperature overall viscosification of the polymer network composition.

10 A 1 wt% polymer network was prepared in deionized water at pH 7 in which a variety of additives were included in the composition. The effect of the additive was determined by generation of a Brookfield viscosification curve. Results are reported in Table 4.

Table 4.

	Example No.	Additive (wt%)	Effect of additive on:	
			Transition Temp. (°C)	Final Viscosity (% change)
15	15	1,2-methyl pyrrolidone (5)	I (1.8)	N
	16	Rhodapex CO-436 (2)	I (1.6)	N
	17	Dow Corning 190 (2)	I (5)	I (150)
	18	isopropyl alcohol (0.5)	I (3.1)	I (45)
	19	Pluronic® L122 (1)	D (4.4)	D (13)
	20	Pluronic® F88 (1)	N	I (41)
20	21	Tween 80 (0.5)	N	I (18)
	22	Germaben® II (1)	D (9)	I (100)
	23	Iconol NP-6 (1)	D (9)	I (500)
	24	Plurafac C-17 (0.5)	I (5.2)	D (36)
	25	Dow Corning 193 (0.75)	I (4.1)	D (12)
	26	glycerin (5)	D (2)	N-

Example No.	Additive (wt%)	Effect of additive on:	
		Transition Temp. (°C)	Final Viscosity (% change)
27	UC 50-HB 170/EO/PO random copolymer (0.5)	N	N
28	PVP K15 (1)	N	N
29	MAPTAC (1)	N	D (8)
30	potassium chloride (0.25)	N	D (34)

5 I = increase; D = decrease; and N = no change

10 **Example 31.** Because of the surfactant nature of the polymer network composition coupled with the gelation effect of the polymer network composition, it is possible to prepare formulations which are 100% water-based, but which are lubricous and thick.

15 **Formulations including a nonionic surfactant formulation:** An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 5.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Emulsifying Wax NF ¹	2.5
Mineral Oil	5.0

20 ¹ Polowax available from Croda

25 Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains a nonionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

Formulations including a cationic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 6.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Behentrimonium Methosulfate (and) Cetearyl alcohol ¹	2.5
Mineral Oil	5.0

¹Incroquat Behenyl TMS available from Croda

10 Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added and allowed to mix to homogeneity. This formulation contains a cationic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

15 Formulations including an anionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 7.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Cetearyl Phosphate (and) Cetearyl alcohol ¹	2.5
Mineral Oil	5.0

¹Crodafos CES available from Croda

25 Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains an anionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

30 Example 32. Acne Medication: An oil-free, clear, anti-acne treatment is made by combining the following ingredients utilizing conventional mixing techniques:

Table 8.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
5 Salicylic Acid	2.0
DL-Panthenol	0.5
Germaben® II ¹	0.1
Disodium EDTA	0.2
10 USP Purified Water	72.2

¹Germaben® II available from Sutton Laboratories

To one vessel, equipped with a Lightnin' Mixer with a 3 blade paddle prop, the full amount of USP Purified Water to 100% w/w is added. While maintaining the temperature, with moderate to vigorous mixing, the formula amount of Disodium 15 EDTA, Citric Acid, DL-Panthenol, Glycerin, Salicylic Acid, and Germaben® II is added. These materials are allowed to dissolve at 50°C. After dissolution, the vessel is then cooled to 20°C. To another vessel, equipped with a high efficiency homogenizer, the formula amount of responsive polymer network is added. The responsive polymer network vessel is then cooled to 4°C. After cooling, while 20 vigorously homogenizing, the contents of the first vessel is added to the second vessel, and allowed to mix to homogeneity.

The composition displays a flowable clear jelly appearance with excellent spreadability and absorption characteristics at room temperature, and after heating the formulation to 32°C, the composition thickens to a gel-like consistency.

25 **Example 33. (a) Oil-free Moisturizer (formulation I):** An oil-free, lubricous moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 9.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
PPG-2 Myristyl Ether Propionate	3.0
DL-Panthenol	0.5
Germaben® II ¹	0.1
Disodium EDTA	0.2
Citric Acid	0.01
USP Purified Water	71.19

¹Germaben® II available from Sutton Laboratories

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The viscosity vs. temperature curve is shown in Figure 21 and demonstrates that addition of adjuvants to the composition significantly enhances the responsive polymer network maximum viscosity (> 900,000 cps). The use of the poloxamer:poly(acrylic acid) polymer network in the formulation also imparts a unique viscosification effect after application to the skin, which is not evident in typical commercial O/W emulsion formulations (See Figure 21b).

(b) Oil-free Moisturizer (formulation II): An oil-free, lubricous moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 10.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
Carbopol 980	1.0

Ingredient	% w/w
D-Panthenol, propylene glycol	1.0
Preservative	1.0
Hydrolyzed protein (and) hyaluronic acid	0.5
Sodium hydroxide	0.2
USP Purified Water	90

5 The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

10 15 Example 34. Sunscreen Lotion. An oil-free, lubricous sunscreen lotion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 11.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	2.0
Glycerin USP	8.0
Carbopol 980	1.0
Parsol MCX	7.0
Myristyl Ether Propionate	5.0
20 25 Preservative	1.0
Cyclomethicone	1.0
Sodium hydroxide	0.2
USP Purified Water	74

30 The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance

with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

5 Example 35. Facial mask. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 12.

	Ingredient	% w/w
10	1:1 polymer network as prepared in Example 1	1.0
	Polyvinyl alcohol	6.0
	Polyvinylpyrrolidone (20%)	5.0
	D-panthenol, propylene glycol	1.25
	Propylene glycol	1.25
	USP Purified Water	85.5

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance 20 with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

25 Example 36. Facial toner. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 13.

	Ingredient	% w/w
30	1:1 polymer network as prepared in Example 1	0.01
	Hydroxyethyl cetyltrimonium phosphate	1.00
	PEG-40 hydrogenated castor oil	2.00

Ingredient	% w/w
D-panthenol, propylene glycol	0.50
Glycerin	2.00
Witch hazel extract	5.00
USP Purified Water	88.49

5

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room 10 temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

15 Example 36. Solubilization studies of model hydrophobic agents in the poloxamer:poly(acrylic acid) polymer network: estradiol and progesterone. This example is presented to demonstrate the solubilization of a hydrophobic agent in the polymeric network. Progesterone and estradiol were used as the hydrophobic agents in this model solubilization study.

Acrylic acid (99%), fluorescein (98%), β-estradiol (98%), and progesterone (98%) were all obtained from Aldrich and used as received. Pluronic® F127 NF was 20 obtained from BASF. Poly(oxyethylene-b-oxypropylene-b-oxyethylene)-g-poly(acrylic acid) copolymers (responsive polymer network) were synthesized by free-radical polymerization of acrylic acid in the presence of poloxamer as described above. The polymer network copolymers discussed here were composed of about 1:1 ratio of PAA to poloxamer. The rheological properties of polymer network were assessed using 25 LVDV-II+ and RVDV-II+ Brookfield viscometers. The microscopic light scattering of 21 nm poly(styrene) latex particles in deionized water and 1 wt% reversibly gelling polymer network was measured using He-Ne laser as described previously (see Matsuo, E.S., Orkisz, M., Sun, S.-T., Li, Y., Tanaka, T., Macromolecules, 1994, 27, 6791). The solubility of fluorescein and hormones in aqueous solutions was measured 30 by the equilibrium of excess solubilizate with the corresponding solution following

removal of undissolved species by centrifugation and filtration. Hydrophobic agents were assayed spectrophotometrically at 240 (progesterone) or 280 nm (estradiol), or by using 70/30 w/w H₂SO₄/MeOH (Tsilifonis-Chafetz reagent). In vitro hormone release studies were conducted using thermostated, vertical Franz cells. Spunbonded
5 polypropylene microfilters (micron retention, 15-20) were used as a membrane separating feed and receiver phases in Franz cells. The responsive polymer network, water, ethanol, and 20% PEG in water were observed to wet the membrane. The receiver solution consisted of 20 w% PEG in water (pH 7) and were stirred by magnetic bars. The feed phases composed of responsive polymer network were loaded
10 with either estradiol or progesterone. Each hormone was dissolved in ethanol and the resulting solution was added into the responsive polymer network.

Equilibrium solubility vs. temperature plots for estradiol and progesterone (partition coefficient octanol/water (P) 7200 and 5888, respectively), in aqueous solutions of Pluronic® F127 polyol and responsive polymer network are presented in
15 Figure 22. It can be seen that increasing temperature and concentration (C) of polymers in the solution raises the amount of the hormone dissolved. In Figure 22a, vertical lines represent critical micellar temperatures (CMT) for corresponding Pluronic® F127 polyol solutions. It is interesting to note that the slope of the solubility-temperature plots increased as temperature reached CMT, indicating that
20 solubilization in the Pluronic® solutions was predominantly due to the formation of micelles. Similar trend was observed in the responsive polymer network solutions. The S values in 5% aqueous solutions of branched PAA did not exceed 15 and 40 µg/mL at 60°C for estradiol and progesterone, respectively. The solubility values found for responsive polymer network were the same as S in parent Pluronic® solutions
25 of equivalent concentrations. Therefore, it may be suggested that solubilization behaviors of the responsive polymer network are governed by the properties of the poloxamer incorporated into it. Thermodynamic parameters of the solubilization process with responsive polymer network were calculated using the same approximations as in the micellar solubilization with Pluronic® polyols. See, Saito, Y.,
30 Kondo, Y., Abe, M., Sato, T., Chem. Pharm. Bull., 1994, 42, 1348. Namely,

partition coefficient P was estimated from equilibrium solubilities of estradiol in responsive polymer network and water:

$$P = S_{SH}/S_W \quad (13)$$

by extrapolating the solubility plots of the steroid in Figure 22 to 100% responsive 5 polymer network. Using P values obtained from data in Figure 23, we calculated the standard free energy change (ΔG), standard enthalpy of solubilization (ΔH), and standard entropy of solubilization (ΔS) using the following expressions:

$$\Delta G = -RT\ln P; \Delta H = -R \Delta \ln P / \Delta(1/T); \Delta S = (\Delta H - \Delta G) / T \quad (14)$$

Thermodynamic parameters obtained along with P values are given in Table 14.
10 Apparent partition coefficients and thermodynamic parameters for solubilization of estradiol by responsive polymer network.

Table 14.

T, K	P=S _{SH} /S _W	ΔG kJ/mol	ΔH kJ/mol	ΔS J/mol
15	277	490	-14.3	4.72
	293	520	-15.2	
	310	660	-16.7	
	323	660	-17.4	
	333	660	-18.0	

Negative ΔG values indicate spontaneous solubilization at all temperatures, whereas positive ΔH shows that the solubilization was endothermic, similar to the solubilization of estriol, as well as indomethacin, by the poloxamer. Notably, ΔS of solubilization was always positive, suggesting that the more ordered water molecules surrounding hydrophobic estradiol molecules moved to the less ordered bulk phase 20 when the estradiol was transferred to the hydrophobic core of PPG segments in responsive polymer network. The aggregation of the PPG segments at elevated 25 temperatures provides not only temporary cross-linking in the gel, but also a thermodynamically "friendly" environment for the hydrophobic drugs. Indeed, one can 30 express the free energy of formation of the aggregate core-water interface in responsive

polymer network as:

$$\Delta G = [\sigma P_w(1-\phi) + \sigma W_D \phi](4\pi R^2/n) \quad (15)$$

where σP_w and σW_D are the interfacial tensions between pure PPO polymer and water and between water and the drug, respectively; ϕ is the volume fraction of the drug

5 within the PPO core; R is the effective radius of the core; and n is the aggregation number.

Equation (3) shows that solubilization of a hydrophobic drug of high σW_D should increase the stability of the aggregate. The solubilization process was found to decrease the critical micellization concentration and substantially increase the micellar 10 core radius in Pluronic surfactants (Hurter, P.N., et al., "In Solubilization in Surfactant Aggregates", Christian, S.D., Ed., Marcel Dekker, New York, 1995). A similar trend is indicated by the lowering the onset of gelation of the responsive polymer network 15 upon solubilization of fluorescein (LogP 2.1) (Figure 24). The solubilization of hydrophobic drugs by responsive polymer network, analogous to the micellar solubilization of drugs by poloxamer, suggests that the responsive polymer network can be an effective vehicle in drug delivery.

Our in vitro study of hormone release from responsive polymer network shows an increase in the initial transport rate with either decreasing total polymer concentration in the formulation or decreasing temperature (Figure 25). These effects 20 are related to the changes in macroscopic viscosity of the responsive polymer network, which erodes more rapidly from the feed phase through the membrane into the receiver compartment as the viscosity decreases (Figure 26). The degree of the responsive polymer network erosion was measured by weighing hormone-loaded responsive polymer network before and after kinetic experiment.

25 Figure 27 shows that the relative amount of progesterone penetrating into the receiver phase decreased 4-fold with the increase of total polymer concentration, whereas the total relative amount of progesterone stayed almost constant as total polymer concentration in the responsive polymer network increased. This result shows the existence of two routes of transport of hydrophobic drugs in our model system.

30 Firstly, the drug incorporated into aggregates within the responsive polymer network

system can flow through the membrane along with the erosion of the responsive polymer network; secondly, the drug not associated with the responsive polymer network aggregates can diffuse out of the responsive polymer network in the feed phase. The second process should not be related to the viscosity of the responsive 5 polymer network. Indeed, the dynamic light scattering experiment shows no dramatic change of diffusivity of poly(styrene) latex particles in the responsive polymer network as temperature rises thereby increasing macroscopic viscosity more than 10-fold (Figure 28). This result indicates that the viscosity of the responsive polymer network is essentially unaffected on the microscopic scale.

10

Appendix A attached.

APPENDIX A
FUNCTION DEFINITIONS

	Abrasive: abrades, smoothes, polishes	Buffer: helps maintain original pH (acidity or basicity) of a preparation
5	Absorbent powder: takes up liquids, sponge-like action	Carrier: a vehicle or base used for a preparation
	Absorption base: forms water-in-oil emulsions	Chelate: form a complex with trace-metal impurities, usually calcium or iron
	Acidulent: acidifies, lowers pH, neutralizes alkalis	Colorant: adds color, may be a soluble dy or an insoluble pigment
10	Amphoteric: capable of reacting chemically either as an acid or a base; amphoteric surfactants are compatible with anionic and cationic surfactants	Conditioner: improves condition of skin and hair
	Analgesic: relieves pain	Coupling agent: aids in solubilization or emulsification of incompatible componenets
	Antacid: neutralizes stomach acidity	Decolorant: removes color by adsorption, bleaching or oxiadaion
15	Antibacterial: destroys/inhibits the growth/ reproduction of bacteria	Denaturant: used to denature ethyl alcohol
	Anti-caking: prevents or retards caking of powders; keeps powders free-flowing	Dental powder: powdered dentifrice
	Anti-dandruff: retards or eliminates dandruff	Deodorant: destroys, masks, or inhibits formation of unpleasant odors
20	Antifoam: suppresses foam during mixing	Depilatory: removes hair chemically
	Anti-inflammatory: reduces, suppresses, counteracts inflamation	Detergent: a surface-active agent (surfactant) that cleans by emulsifying oils and suspends particulate soil
	Anti-irritant: reduces, suppresses or prevents irritation	Disinfectant: destroys pathogenic microorganisms
25	Antimicrobial: destroys, inhibits or suppresses the growth of microorganisms	Dispersant: promotes the formation and stabilization of a dispersion or suspension
	Antioxidant: inhibits oxidation and rancidity	Dye stabilizer: see Stabilizer
	Antiperspirant: reduces or inhibits perspiration	Emollient: softens, smoothes skin
	Antipruritic: reduces or prevents itching	Emulsifier: a surface-active agent (surfactant) that promotes the formation of water-in-oil or oil-in-water emulsions
30	Antiseptic: inhibits the growth of microorganisms on the skin or on living tissue	Enzymes: complex proteins produced by living cells that catalyze biochemical reactions at body temperature.
	Antistat: reduces static by neutralizing electrical charge on a surface	Fiber: strands of natural or synthetic polymers; for instance, cotton, wool, silk, nylon, polyester
35	Astringent: contracts organic tissue after application	Film former: solution of a polymer that forms films when the solvent evaporates after application to a surface
	Binder: promotes cohesion of powders	
	Bleaching agent: lightens color, oxidizing agent	
	Botanical: natural plant derivative	

	Fixative: fixes or sets perfumes; retards evaporation; promotes longer lasting aroma	agent and re-establishes the disulfide linkages in hair
5	Flavor: imparts a characteristic taste (and aroma) to edible foods and drinks; sometimes used in lip products	Oil absorbent: see Absorbent powder
	Foam booster: enhances quality and quantity of lather of shampoos	Ointment base: an anhydrous mixture of oleaginous components used as a vehicle for medicaments
	Foamer: a surface-active agent (surfactant) that produces foam; an emulsion of air-in-water	Opacifier: opacifies clear liquids or solids
10	Foam stabilizer: see Foam booster	Oxidant: oxidizing agent, neutralizes reducing agents, bleaching agent
	Fungicide: inhibits or destroys growth of fungi	Pearlant: imparts a pearlescent texture and luster
	Gellant: a gelling agent; forms gels; includes a wide variety of materials such as polymers, clays and soaps	Perfume solvent: see Solvent and Solubilizer
15	Glosser: furnishes a surface luster or brightness; usually used in lip or hair products	Peroxide stabilizer: see Stabilizer
	Hair colorant: see Colorant	Pigment: a finely powdered insoluble substance used to impart color, luster, or opacity
	Hair conditioner: see Conditioner	Plasticizer: plasticizes (makes more flexible) polymeric films or fibers
20	Hair dye: imparts a new permanent or semi-permanent color to hair	Polish: smoothes; adds gloss and luster
	Hair-set polymer: polymer and/or resins used to maintain desired hair shape	Polymer: a very high molecular weight compound consisting of repeating structural units
	Hair-set resin: see Hair-set polymer	Powder: a solid in the form of fine particles
25	Hair waving: see Reducing agent and Neutralizer	Preservative: protects products from spoilage by microorganisms
	Humectant: absorbs, holds, and retains moisture	Propellant: pressurized gas in a container used to expel the contents when pressure is released by opening a valve
	Hydrotrope: enhances water solubility	Protein: naturally occurring complex combinations of amino acids
30	Intermediate: basic chemicals which are chemically modified to obtain the desired function	Reducing agent: reduces a chemical compound usually by donating electrons; neutralizes oxidizing agents
	Lathering agent: a surface active agent (surfactant) that forms a foam or lather on mixing with air in solution; see also Foamer	Refatting agent: adds oils materials to the surface of substrates, e.g., skin and hair
	Lubricant: reduces friction, smoothes, adds slip	Resin: nonvolatile solid or semisolid organic substances obtained from plants as exudates to prepared by polymerization of simple molecules
35	Moisture barrier: retards passage of moisture or water	Sequestrant: forms coordination complexes with multivalent positive ions
	Moisturizer: aids in increasing the moisture content of the skin through humectant or barrier action	Silicone: polymeric organic silicon compounds which are water-resistant
40	Neutralizer: an oxidizing agent used in hair waving that stops the action of the reducing	

Skin protectant: protects the skin from environmental

Solubilizer: solubilizes, usually into aqueous vehicles, normally insoluble materials, such as fragrances, flavors, oils, etc.

5 Solvent: usually liquids capable of dissolving other substances

Stabilizer: added to stabilize emulsions and/or suspensions

10 Stimulant: produces a temporary increase in the functional activity of an organism or any of its parts

Surfactant (surface active agent): lowers surface tension between two or more incompatible

15 phases; soaps, detergents, wetting agents, solubilizing agents and emulsifying agents are typical surfactants; surfactants are classified as anionic, cationic, nonionic and amphoteric; anionic surfactants are negatively charged, cationic surfactants have no electrical charge

20 Suspending agent: keeps finely divided solid particles in suspension

25 Sweetener: sweetens to provide a more pleasant taste

Tanning accelerator: accelerates the tanning of skin

Thickener: thickens or increases viscosity/consistency

30 Thixotrope: the property of certain gels and emulsions of becoming more fluid or less viscous when shaken or stirred

UV absorber: used as a sunscreen and to protect preparations from degradation by UV radiation

35 UVA absorber: absorbs in the range 320-400 nanometers (nm)

UVB absorber: absorbs in the range 290-320 nanometers (nm)

40 Wax: any of numerous substances of plant, animal or synthetic origin that contain principally esters of higher fatty acids and higher fatty alcohols; free fatty alcohols, fatty acids and hydrocarbons may also be present; waxes derived from petroleum

45 products are mainly high-molecular-weight hydrocarbons

Wetting agent: a surface-active agent (surfactant) that lowers the surface and interfacial tension, facilitating the wetting of surfaces

FUNCTIONS

	Abrasive	AHA
	Adzuki beans	Apple (Pyrus malus) extract
5	Almond (Prunus amygdalus) meal, shell granules	Apricot (Prunus armeniaca) kernel powder
	Aluminum silicate	Citric acid
	Apricot (Prunus armeniaca) kernel powder, shells	Ethyl lactate
	Hydrated silica	Glycolic acid
	Jojoba (Buxus chinensis) seed powder	Lactic acid
10	Luffa cylindrica	Malic acid
	Olive stone granules	Sodium lactate
	Oyster shell powder	Tartaric acid
	Peach (Prunus persica) pit powder	
	Peach (Prunus persica) stone granules	
15	Polyethylene	Antiacne
	Polyethylene HEC granules	Clays (white, yellow, red, green, pink)
	Polyethylene oxidized, P. spheres	Perfluorodecalin
	Polystyrene	Salicylic acid
	Pumice	Sulfur
20	Rice (Oryza sativa) bran	
	Silica and S. colloidal	Anti-aging
	Sodium chloride	Basil (Ocimum basilicum) extract
	Walnut (Juglans regia) shell powder	Carrot (Daucus carota) extract
25	Absorption base	Catalpa kaempfera extract
	1,2,6-Hexanetriol	Ceramide 33 (liquid soy extract)
	Kaolin	Crataegus cuneata extract
	Petrolatum	Eugenia jambolana extract
	Rice (Oryza sativa) starch	Fomes fomentarius extract
30	Soy (Glycine soja) sterol	Fomistopsis pinicola extract
	Zeolite	Ganoderma lucidum oil
		Ginseng (Panax ginseng) extract
		Hyaluronic acid
		Hydrolyzed serum protein
	Absorbent powder	Hydrolyzed soy flour
	Corn (Zea mays) starch	Isachne pulchella extract
35	Maltodextrin	Lactoferrin
	Nylon-12	Lady's Thistle (Silybum marianum) extract
	Oat (Avena sativa) bran, flour, meal	Ligusticum jeholense extract
	Zeolite	Marine collagen
40	Acidulent	Mushroom (Coriolus versicolor) extract
	Acetic acid	Must rose (Rosa moschata) oil
	Citric acid	Perfluorodecalin
	Fumaric acid	Quaternium-51
	Glutamic acid	Rubus thunbergii extract
45	Glycolic acid	Serum protein
	Hydrochloric acid	Stenocalyx micalii extract
	Lactic acid	Tricholoma matsutake extract
	Nitric acid	
	Phosphoric acid	Antibacterial
50	Sodium bisulfate	Ammonium iodide
	Sulfuric acid	Chlorhexidine
	Tartaric acid	Chlorhexidine diacetate, C. digluconate
		Chlorhexidine dihydrochloride

	Chlorphenesin	<u>Antidandruff</u>
	Hexamidine diisethionate	Burdock (<i>Arctium lappa</i>) extract
	Héxétidine	Chloroxylenol
5	Iceland moss (<i>Cetraria islandica</i>) extract	Corydalis ambigua extract
	Lactoterrin	Disodium undecylenamido MEA-sulfosuccinate
	Lauralkonium bromide, L. chloride	Ginger root extract
	Laurtrimonium chloride	Inga edulis extract
	Laurylpypidinium chloride	Mauritiella armata extract
10	Mauritiella armata extract	Myristalkonium saccharinate
	Mushroom (<i>Cordyceps sbolifera</i>) extract	PEG-6 undecylenate
	Orange blossom extract	Piroctone olamine
	Orange (<i>Citrus aurantium dulcis</i>) peel extract	Resorcinol
	PEG-42 Ebiriko ceramides extract	Rosemary (<i>Rosmarinus officinalis</i>) extract
15	Peppermint (<i>Mentha piperita</i>) extract	Sodium shale oil sulfonate
	Philodendron (<i>Phellodendron amurense</i>) extract	Stenocalyx micalii extract
	Pine (<i>Pinus sylvestris</i>) needle extract	Undecylenamide DEA
	Polymethoxy bicyclic oxazolidine	Willow (<i>Salix alba</i>) bark extract
	Quaternium 73	Zinc pyrithione
20	Rubus thunbergii extract	
	Tea tree (<i>Melaleuca alternifolia</i>) oil	<u>Antifungal</u>
	Triclocarban	Black walnut (<i>Juglans nigra</i>) extract
	Undecylenic acid	Coneflower (<i>Echinacea angustifolia</i>) extract
		Orange blossom extract
25	Anticaking	Pfaffia paniculata extract
	Aluminum starch octenylsuccinate	
	Calcium stearate	<u>Anti-inflammatory</u>
	Distarch phosphate	Allantoin polygalacturonic acid
	Hydrated silica	Bisabolol
	Kaolin	Black poplar (<i>Populus nigra</i>) extract
30	Magnesium myristate, M. silicate	Brassica rapa-depressa extract
	Polyethylene, micronized	Butcherbroom (<i>Ruscus aculeatus</i>) extract
	Silica silylate	Calendula officinalis extract
	Sodium aluminum silicate	Catalpa kaempfera extract
	Zinc stearate	Celastrus paniculata extract
35		Ceramide 33 (liquid soy extract)
	Anticaries agent	Chaparral (<i>Larrea mexicana</i>) extract
	Cetylamine hydrofluoride	Coneflower (<i>Echinacea angustifolia</i>) extract
	Olaflur	Cornflower (<i>Centaurea cyanus</i>) extract
	Sodium fluoride	Dipotassium glycyrrhizinate
40	Stearyl trihydroxyethyl propylenediamine dihydrofluoride	Euphorotium fortunei extract
		Duphrasia officinalis extract
		Ficus racemosa extract
	Anticellulite	Golden seal (<i>Hydrastis canadensis</i>) root extract
	Aminophylline	Guaiiazulene
45	Bladderwrack (<i>Fucus vesiculosus</i>) extract	Horse chestnut (<i>Aesculua hippocastanum</i>) extract
	Butcherbroom (<i>Ruscus aculeatus</i>) extract	Jujube (<i>Zizyphus jujuba</i>) extract
	Carcinia cambogia extract	Laminaria japonica extract
	Fomes fomentarius extract	Licorice (<i>glycyrrhiza glabra</i>) extract
	Fomistopsis pinicola extract	Ligusticum jeholense, L. lucidum extract
50	Ivy extract	Matricaria (<i>Chamomilla recutita</i>) extract
	Mushroom (<i>Coriolus versicolor</i>) extract	Melaleuca uncinata extract
	TEA-hydroiodide	Melia azadirachta extract
	Tricholoma matsutake extract	

	Mulberry (<i>Morus nigra</i>) extract	PVP
	Niacinamide ascorbate	Saccharomyces lysate extract
	Orange (<i>Citrus aurantium dulcis</i>) peel extract	Sodium C12-15 pareth-15 sulfonate
	Orange blossom extract	Sodium lauroamphoacetate
5	Palmetto extract	Soy (<i>Glycine soja</i>) protein
	Palmitoyl collagen amino acids	Undecylenoyl collagen amino acids
	Passion flower (<i>Passiflora laurifolia</i>) fruit extract	Valerian (<i>Valeriana officinalis</i>) extract
	Paulownia imperialis extract	
	Alicyclic acid	Antimicrobial
10	Shea butter (<i>Butyrospermum parkii</i>)	Benzalkonium chloride
	Sodium carboxymethyl beta-glucan	Benzoic acid
	soy (<i>Glycine soja</i>) protein	Benzyl alcohol
	Stearyl glycyrrhetinate	Bromochlorophene
	Stenocalyx micalii extract	2-Bromo-2-nitropropane-1,3-diol
15	Tocopheryl acetate, T. nicotinate	Butylparaben
	Trichomonas japonica extract	Capryloyl collagen amino acids
	Willow (<i>Salix alba</i>) extract	Capryloyl glycine, C. keratin amino acids
	Witch hazel (<i>Hamamelis virginiana</i>) extract	Captan
	Withania somnifera extract	Cetethyldimonium bromide
20	Yarrow (<i>Achillea millefolium</i>) extract	Cetyl pyridinium chloride
	Zinc lactate	Chlorothymol
		Chloroxylenol
		Citron oil
	Anti-irritant	Copper PCA
	Acetyl monoethanolamine	Dichlorobenzyl alcohol
25	Allantoin	Dilauryldimonium chloride
	Allantoin acetyl methionine, A. glycyrrhetic acid	Domiphen bromide
	Azelamide MEA	Ethylparaben
	Betaine	Eucalyptus (<i>Eucalyptus globulus</i>) extract
30	Calendula officinalis extract	Fennel (<i>Foeniculum vulgare</i>) extract
	Cocamidopropyl betaine	Garlic (<i>Allium sativum</i>) extract
	Coceth-7 carboxylic acid	Glyceryl caprylate, G. laurate
	Cornflower (<i>Centaurea cyanus</i>) extract	Hexamidine diisethionate
	Diisostearyl dimer dilinoleate	Hinokitiol
35	Dipalmitoyl cystine	Honeysuckle (<i>Lonicera caprifolium</i>) extract
	Green tea extract	Lichen (<i>Usnea barbata</i>) extract
	Hydrolyzed sweet almond protein	Myristalkonium chloride
	Hydroxypropyltrimonium gleat	Pentylene glycol
	Lauroyl collagen amino acids	Phenethyl alcohol
40	1-Lysine lauroyl methionine	Phenol
	Mallow extract	Phenoxyethanol
	Matricaria (<i>Chamomilla recutita</i>) extract	Phenoxyisopropanol
	Palmitoyl hydrolyzed milk protein	Phenyl mercuric acetate, P.m. benzoate, P.m. borate
	Palmitoyl hydrolyzed wheat protein	o-Phenylphenol
45	Palmitoyl keratin amino acids	Polymethoxy bicyclic oxazolidine
	PEG-12 palm kernel glycerides	Potassium sorbat
	PEG-28 glyceryl tailowate	Propylparaben
	PEG-30 glyceryl monococoate	Ricinoleamodopropyltrimonium ethosulfate
	PEG-60 almond glycerides	Sage (<i>Salvia officinalis</i>) extract
50	PEG-78 glyceryl cocoate	Sodium benzoate, S. pyrithione
	PEG-82 glyceryl tailowate	Sodium ricinoleate, S. shale oil sulfonate
	PEG-200 glyceryl tailowate	Thimerosal
	Propionyl collagen amino acids	

	Thyme (<i>Thymus vulgaris</i>) extract	Tocopheryl acetate, T. linoleate
	Thymol	Wild marjoram (<i>Origanum vulgare</i>) extract
	Triclocarban	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)
5	Triclosan	
	Undecylenamidopropyltrimonium methosulfate	Antiperspirant
	Undecylenic acid	Allantoin-aluminum chloride
	Zinc oxide, Z. PCA	Aluminum capryloyl hydrolyzed collagen
	Zinc pyrithione, Z. undecylenate	Aluminum chlorhydrrex-gly, A. chloride
10	Antioxidant	Aluminum chlorhydrrex, A. chlorhydrrex
	Ascorbic acid	Aluminum PCA, A. sesquichlorhydrrex
	A. polypeptide	Aluminum undecylenoyl collagen amino acids
	Ascorbyl oleate, A. palmitate	Aluminum zirconium pentachlorhydrrex
	Beta-carotene	Aluminum zirconium tetrachlorhydrrex
15	BHA	Aluminum zirconium tetrachlorhydrrex GLY
	BHT	Aluminum zirconium trichlorhydrrex
	t-Butyl hydroquinone	Aluminum-zirconium-glycine powder
	Dilauryl thiodipropionate	Sage (<i>Salvia officinalis</i>) extract
	Dimyristyl thiodipropionate	Tormentil (<i>Potentilla erecta</i>) extract
20	Disodium EDTA	Zirconium chloride
	Distearyl thiodipropionate	
	Dodecyl gallate	Antiseptic
	EDTA	Aluminum PCA
	Erythorbic acid	Azadirachta indica extract
25	Ferulic acid	2-Bromo-2-nitropropane-1,3-diol
	Grape (<i>Vitis vinifera</i>) seed extract	Calendula amurensis extract
	Green tea extract	p-Chloro-m-cresol
	HEDTA	Clove (<i>Eugenia caryophyllus</i>) oil
	Hydroquinone	Crataegus cuneata extract
30	Hydroquinone-beta-D-glucopyranoside	Dichlorobenzyl alcohol
	p-Hydroxyanisole	Entada phaseoloides extract
	Lactoferrin	Eucalyptus (<i>Eucalyptus globulus</i>) extract
	Lysine PCA	Golden seal (<i>Hydrastis canadensis</i>) root extract
	Melanin	Hexachlorophene
35	Methyl gallate	Melia australasica, M. azadirachta extract
	Niacinamide ascorbate	Methyl salicylate
	Nordihydroguaiaretic acid	Orange (<i>Citrus aurantium dulcis</i>) peel extract
	Oat (<i>Avena sativa</i>) extract	Oxyquinoline sulfate
	Oryzanol	Pfaffia paniculata extract
40	Pentasodium pentetate	Potassium abietoyl hydrolyzed collagen
	Pentetic acid	PVP-iodine
	Propyl gallate	Silver nitrate
	Retinyl palmitate polypeptide	Sodium salicylate
	Rosemary (<i>Rosmarinus officinalis</i>) extract	Sterculia platanifolia extract
45	Saccharomyces lysate extract	Tea tree (<i>Melaleuca alternifolia</i>) oil
	Sage (<i>Salvia officinalis</i>) extract	Tormentil (<i>Potentilla erecta</i>) extract
	Sodium ascorbate, S. erythorbate	Xanthozylum bungeanum extract
	Sodium metabisulfite	
	Sodium selenate, S. sulfite	Antistat
50	Superoxide dismutase,	Acetamide MEA
	Tea (<i>Camellia sinensis</i>) extract	Acetamidopropyl trimonium chloride
	Tetrasodium EDTA	6-(N-Acetylamo)-4-oxyhexyltrimonium chloride
	Tocopherol	Alkyl dimethyl betaine

	Babassuamidopropalkonium chloride	Soyethyldimonium ethosulfate
	Behenamidopropyl ethyldimonium ethosulfate	Stearalkonium chloride
	Behenamidopropyl hydroxyethyl dimonium chloride	Stearamidopropyl benzyl dimonium chloride
5	Carboxymethyl chitin	Stearamidopropyl ethyldimonium ethosulfate
	Cetethyl morpholinium ethosulfate	Stearammonium chloride
	Cetrimonium chloride	N-Stearyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
	Chitin	Wheat germamidopropylethyldimonium ethosulfate
	Chitosan	
10	Cocamidopropyl ethyldimonium ethosulfate	Astringent
	Cocodimonium hydroxypropyl hydrolyzed rice protein	Aluminum citrate, A. lactate
	Cocodimonium hydroxypropyl hydrolyzed soy protein	Astragalus sinicus extract
15	Dimethicone hydroxypropyl trimonium chloride dimethyl behenamine, D. cocamine	Astrocaryum murumuru, A. tucuma extract
	Dimethyl palmitamine, D. soyamine	Azadirachta indica extract
	Dimethyl tailowamine	Azelamide MEA
20	Dioleylamidoethyl hydroxyethylmonium methosulfate	Bearberry (<i>Arctostaphylos uva-ursi</i>) extract
	Dipalmitoylethyl hydroxyethylmonium methosulfate	Birch (<i>Betula alba</i>) leaf extract
	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride	Catalpa kaempfera extract
25	Erucamidopropyl hydroxysultaine	Celastrus paniculata extract
	Glyceryl monopyroglutamate	Coccinea indica extract
	Hydrogenated tailowamine oxide	Coffee (<i>Coffea arabica</i>) bean extract
	Isosteara propyl dimethylamine	Euphrasia officinalis extract
30	Lactamidopropyl trimonium chloride	Euterpe precatoria extract
	Lauryldimonium hydroxypropyl hydrolyzed collagen	Evening primrose (<i>Oenothera biennis</i>) extract
	Linoleamidopropyl dimethylamine dimer dilinoleate	Gentian (<i>Gentiana lutea</i>) extract
	Olealkonium chloride	Geranium maculatum extract
35	PEG-2 cocamine	Grape (<i>Vitis vinifera</i>) leaf extract
	PEG-2 cocomonium chloride	Henna (<i>Lawsonia inermis</i>) extract
	PEG-2 oleammonium chloride	Hierochloe odorata extract
	PEG-8 caprylic/capric glycerides	Honeysuckle (<i>Lonicera caprifolium</i>) extract
	PEG-10 cocamine	Hops (<i>Humulus lupulus</i>) extract
40	PEG-15 soyamine	Horesetail extract
	PPG-9 diethylmonium chloride	Hypericum perforatum extract
	PPG-25 diethylmonium chloride	Ivy extract
	PPG-40 diethylmonium chloride	Juniperus communis extract
	Propylene glycol stearate	Kadsura heteroclita extract
45	Quaternium-26, -27, -53, -62, -72	Kola (<i>Cola acuminata</i>) extract
	Rapeseedamidopropyl benzylmonium chloride	Lady's mantle (<i>Alchemilla vulgaris</i>) extract
	Rapeseedamidopropyl epoxypropyl dimonium chloride	Lemon (<i>Citrus medica limonum</i>) extract, peel extract
	Silica, colloidal	Lemon bioflavonoids extract
50	Sorbitan caprylate	Lysimachia foenum-graecum extract
	N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Magnolia spp. extract
	Soyethyl morpholinium ethosulfate	Mauritia flexosa extract

	Plantain (<i>Plantago major</i>) extract	<u>Biol. polymer</u>
	Polygonum multiflorum extract	Distarch phosphate
	Pterocarpus marsupianus extract	Dog rose (<i>Rosa canina</i>) see extract
	Raspberry (<i>Rubus</i>) extract	Hydrogen peroxide
5	Sambucus nigra oil	Kojic acid
	Sanguisorbae root extract	Mulberry (<i>Morus nigra</i>) extract
	Selinum spp. extract	Sanguisorbae root extract
	Shorea robusta extract	
	Tannic acid	
10	Walnut (<i>Juglans regia</i>) leaf extract, oil	<u>Botanical</u>
	Wheat (<i>Triticum vulgare</i>) protein	Acacia
	White nettle (<i>Lamium album</i>) extract	Acacia farnesiana extract
	Witch hazel (<i>Hamamelis virginiana</i>) extract	Agrimony (<i>Agrimonia eupatoria</i>) extract
	Xanthozylum bungeanum extract	Alder (<i>Alnus firma</i>) extract
15	Zinc lactate	Alfalfa (<i>Medicago sativa</i>) extract
	Ziziphus jujuba extract	Algae (<i>Ascophyllum nodosum</i>) extract
		Algae (<i>Lithotamnium calcarm</i>) extract
		Aloe barbadensis, A.b. extract
		Aloe capensis extract
		Alpine Veronica extract
20	<u>Binder</u>	Althea officinalis extract
	Aluminum starch octenylsuccinate	Angelica archangelica extract
	Boron nitride	Anise (<i>Pimpinella anisum</i>) extract
	C20-40, C30-50, C40-60 alcohols	Apple (<i>Pyrus malus</i>) extract
	Calcium stearate	Apricot (<i>Prunus armeniaca</i>) extract
	Cellulose gum	Arnica montana extract
	Dihydroabietyl behenate	Artemisia capillaris extract
25	Diisostearyl malate	Artichoke (<i>Cynara scolymus</i>) extract
	diethyl sebacate	Asafetida (<i>Ferula assa foetida</i>) extract
	Distarch phosphate	Asiasarum _____ extract
	ethylcellulose	Asparagus officinalis extract
	Gellan gum	Astragalus sinicus extract
30	Hydrogenated jojoba oil	Avens (<i>Geum rivale</i>) extract
	Isocetyl alcohol, I. palmitate	Avocado (<i>Persea gratissima</i>) extract
	Isopropyl isostearate	Balm mint (<i>Melissa officinalis</i>) extract, oil
	Isostearyl erucate, I. isostearate	extract
	Isostearyl neopentanoate	Vanana (<i>Musa sapientum</i>) extract
35	Maltodextrin	Barley (<i>Hordeum vulgare</i>) extract
	Methylcellulose	Basil (<i>Ocimum basilicum</i>) extract
	Microcrystalline cellulose	Bearberry (<i>Arctostaphylos uvaUrsi</i>) extract
	Octyl palmitate	Bee pollen extract
	Octyldodecyl myristate	Beet (<i>Beta vulgaris</i>) extract
40	bis-Octyldodecyl stearoyl dimer dilinoleate	Betaglucan
	Octyldodecyl stearoyl stearate	Bilberry (<i>Vaccinium myrtillus</i>) extract
	Oleyl oleate	Bioflavonoids
	PEG-20, -75, -150, -240, -350	Birch (<i>Betula alba</i>) bark extract, leaf extract
	Polydipentene	Birch (<i>Betula platyphylla japonica</i>) extract
45	Polyethylene; P. micronized	Bitter orange (<i>Citrus aurantium amara</i>) extract, flower extract, peel extract
	PTFE	Black cohosh (<i>Cimicifuga racemosa</i>) extract
	PVP	Black currant (<i>Ribes nigrum</i>) extract
	Sorbitol	Black henna extract
	Synthetic wax	Black poplar (<i>Populus nigra</i>) extract
50	Tapioca dextrin	Black walnut (<i>Juglans nigra</i>) extract
	Tridecyl benenate, T. neopentanoate	
	Tridecyl stearoyl stearate	
	Trisodium HEDTA	

	Bladderwrack (<i>Fucus vesiculosus</i>) extract	Dead Sea Mud, Salts
	Borage (<i>Borago officinalis</i>) extract	Dog rose (<i>Rosa canina</i>) hips extract
	Buckthorn (<i>Frangula alnus</i>) extract	Dyer's broom extract
	Burdock (<i>Arctium lappa</i>) extract	Eleuthero ginseng (<i>Acanthopanax senticosus</i>) extract
5	Burdock (<i>Arctium minus</i>) root extract	Elm (<i>Ulmus campestris</i>) extract
	Burnet extract	Eucalyptus (<i>Eucalyptus globulus</i>) extract
	Butcherbroom (<i>Ruscus aculeatus</i>) extract	Eucalyptus globulus oil
	Cabbage rose (<i>Rosa centifolia</i>) extract	Eucommia ulmoides extract
	Calamus (<i>Acorus calamus</i>) extract	Euphrasia officinalis extract
10	Calendula officinalis extract	Evening primrose (<i>Oenothera biennis</i>) extract, oil
	Caper (<i>Capparis spinosa</i>) extract	Everlasting (<i>Helichrysum arenarium</i>) extract
	Capsicum frutescens extract, C.f. oleoresin	Fennel (<i>Foeniculum vulgare</i>) extract
	Caraway (<i>Carum carvi</i>) extract	Fenugreek extract
	Carrageenan (<i>Chondrus crispus</i>)	Fermented rice (<i>Oryza sativa</i>) extract
15	Carrot (<i>Daucus carota</i>) extract	Fern (<i>Dryopteris filix-Mas</i>) extract
	Carrot (<i>Daucus carota sativa</i>) oil	Fig (<i>Ficus carica</i>) extract
	Cassia auriculata extract	Fir needle extract
	Celandine (<i>Chelidonium majus</i>) extract	Fumitory (<i>Fumaria officinalis</i>) extract
	Chamomile (<i>Anthemis nobilis</i>) extract, oil	Gardenia florida extract
20	Chaparral (<i>Larrea mexicana</i>) extract	Garlic (<i>Allium sativum</i>) extract
	Cherry (<i>Prunus speciosa</i>) leaf extract	Gelidium cartilagineum
	Cherry bark, C.b. extract	Gentian (<i>Gentiana lutea</i>) extract
	Chestnut (<i>Castanea sativa</i>) extract	Geranium maculatum extract
	Chinese hibiscus (<i>Hibiscus rosa-sinensis</i>) extract	Ginger root extract
25	Chlorella vulgaris extract	Ginkgo biloba extract
	Cimicifuga foetida rhizome extract	Ginseng (<i>Panax ginseng</i>) extract
	Cinchona succiruba extract	Glycyrrhetic acid
	Citroflavonoid, water soluble	Glycyrrhizic acid
	Citrus bioflavonoid complex	Glycyrrhizin ammoniated
30	Clary extract	Golden seal (<i>Hydrastis canadensis</i>) root extract)
	Clove (<i>Eugenia caryophyllus</i>) extract	Goldthread (<i>Coptis japonica</i>) extract
	Clover (<i>Trifolium pratense</i>) extract	Gotu kola extract
	_____ officinale rhizome extract, C.o.	Grape (<i>Vitis vinifera</i>) distillate, extract
	_____ water	Grape (<i>Vitis vinifera</i>) leaf, seed extract
35	Coffee (<i>Coffea arabica</i>) bean extract	Grape skin extract
	_____ oatmeal	Grapefruit (<i>Citrus grandis</i>) peel extract
	_____ (<i>Tussilago farfara</i>) leaf extract	Green bean (<i>Phaseolus lunatus</i>) extract
	_____ (<i>Sympythum officinale</i>) leaf extract	Ground Ivy (<i>Glechoma hederacea</i>) extract
	extract	Guarana (<i>Paullinia cupana</i>) extract
40	_____ (<i>Echinacea angustifolia</i>) extract	Harpagophytum procumbens extract
	_____ officinalis	Hay flower extract
	_____ olitorius extract	Hazel (<i>Corylus avellana</i>) nut extract
	_____ (<i>Coriandrum sativum</i>) extract	Henna (<i>Lawsonia inermis</i>) extract
	_____ (<i>Zea mays</i>) cob powder, silk extract	Hesperidin, H, methyl chalcone
45	_____ poppy (<i>Papaver rhoes</i>) extract	Hibiscus sabdariffa extract
	_____ (<i>Centaurea cyanus</i>) extract	Hibiscus syriacus extract
	_____ (<i>Agropyron repens</i>) grass	High beta-glucan barley flour
	monogina extract	Honeysuckle (<i>Lonicera caprifolium</i>) extract
	maritimum extract	Honeysuckle (<i>Lonicera japonica</i>) leaf extract
50	Cucumber (<i>Cucumis sativus</i>) extract	Hops (<i>Humulus lupulus</i>) extract
	Cypress (<i>Cupressus sempervirens</i>) extract	Horse chestnut (<i>Aesculia hippocastanum</i>) extract
	Dandelion (<i>Taraxacum officinale</i>) extract	Horseradish (<i>Cochlearia armoracia</i>) extract
	Date (<i>Phoenix dactylifera</i>) extract	

	Horsetail extract	Nasturtium extract
	Houttuynia cordata extract	Neroli extract
	Hyacinth (Hyacinthus orientalis) extract	nettle (Urtica dioica) extract
5	Hydrocotyl (Centella asiatica) extract	Oak (Quercus) bark extract
	Hydrolyzed oat protein, soy flour	Oak root extract
	Hypericum perforatum extract	Oat (Avena sativa) bran, bran extract, flour, protein
	Hyssop (Hyssopus officinalis) extract	Oat flower
	Indian cress (Tropaeolum majus) extract	Olive (Olea europa) extract, leaf extract
	Isodonis Japonicus extract	Onion (Allium cepa) extract
10	Ivy extract	Orange blossom extract
	Japanese angelica (Angelica acutiloba) extract, water	Orange (Citrus aurantium dulcis) flower extract, peel extract
	Japanese hawthorn (Crataegus cuneata) extract	Pansy (Viola tricolor) extract
	Jasmine (Jasminum officinale) extract	Papaya (Carica papaya) extract
15	Job's tears (Coix lacryma-jobi) extract	Parsley (Carum petroselinum) extract
	Jojoba (Buxus chinensis) seed powder	Passion flower (Passiflora laurifolia) fruit extract
	Juniperus communis extract	Passionflower (Passiflora incarnata) extract
	Kelp (Macrocystis pyrifera) extract	Pea (Pisum sativum) extract
20	Kiwi (Actinidia chinensis) fruit extract, seed oil	Peach (Prunus persica) extract, leaf extract
	Kola (Cola acuminata) extract	Pelargonium capitatum extract
	Krameria triandra extract	Pellitory (Parietaria officinalis) extract
	Lady's mantle (Alchemilla vulgaris) extract	Pennyroyal (Mentha pulegium) extract
	Lady's Thistle (Silybum Marianum) extract	Peony (Paeonia albaflora) extract
	Laurel (Laurus nobilis) extract	Peony (Paeonia obovata) root extract
25	Lavender (Lavandula angustifolia) extract, water	Peppermint (Mentha piperita) extract, oil
	Lemon (Citrus medica limonum) extract, juice extract, peel extract	Perilla ocyoides extract
	Lemon bioflauonoids extract	Periwinkle (Vinca minor) extract
	Lemongrass (Cymbopogon schoenanthus) extract	PEG-80 jojoba acid/alcohol
30	Leopard flower (Belamcanda chinensis) root extract	PEG-120 jojoba acid/alcohol
	Lettuce (Lactuca scariola sativa) extract	Pfaffia paniculata extract
	Licorice (Glycyrrhiza glabra) extract	Pheildendron amurense extract
	Lilac (Syringa vulgaris) extract	Pospholipids
35	Linden (Tilia argentea) extract	pimento (Pimenta officinalis) extract
	Linden (Tilia cordata) extract, water	Pine (Pinus sylvestris) cone, needle extract
	Loquat (Eriobotrya japonica) leaf extract	Pineapple (Ananas sativus) extract
	Maidenhair fern extract	Plantain (Plantago major) extract
	magnolia kobus extract	Pollen extract
40	Mallow extract	Pongamol
	Mandragora officinarum extract	Poria Cocos extract
	Mannan	Pueraria lobata extract
	Marigold	Queen of the meadow extract
	Marine silts	Quillaja saponaria extract
45	Matricaria (Chamomilla recutita) extract	Quince (Pyrus cydonia) seed extract
	Meadowsweet (Spiraea ulmaria) extract	Quinoa (Chenopodium quinoa) extract
	Melon (Cucumis melo) extract	Raspberry (Rubus) extract
	MEA iodine	Rauwolfia (Serpentina) extract
	Mistletoe (Viscum album) extract	Red clover
50	Mugwort (Artemisia princeps) extract, water	Rehmannia chinensis extract
	Mulberry (Morus alba) root extract	Restharrow (Ononis spinosa) extract
	Mushroom extract	Rhododendron chrysanthum extract
	Myrrh (Commiphora myrrha) extract	Rhodophycea extract
		Rhubarb (Rheum palmatum) extract

	Rice (<i>Oryza sativa</i>) bran extract	Wild marjoram (<i>Origanum vulgare</i>) extract
	Rice fatty acid	Willow (<i>Salix alba</i>) bark extract, extract
	Rose' (<i>Rosa multiflora</i>) extract	Willow (<i>Salix alba</i>) leaf extract
5	Rosemary (<i>Rosmarinus officinalis</i>) extract	Witch hazel (<i>Hamamelis virginiana</i>) extract
	Rubia tinctorum extract	Yarrow (<i>Achillea millefolium</i>) extract
	Safflower (<i>Carthamus tinctorius</i>) extract	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)
	Sage (<i>Salvia officinalis</i>) extract, water	Yucca vera extract
	Sambucus nigra berry extract, extract	Zanthoxylum piperitum extract
10	Sandalwood (<i>Santalum album</i>) extract	Zedoary (<i>Curcuma zedoraria</i>) oil
	Sanguinaria canadensis extract	
	Saponaria officinalis extract	Buffer
	Sasa veitchii extract	Ammonium carbonate, A. phoshate
	Saxifraga sarmentosa extract	Calcium hydroxide, C. phosphate
	Scabiosa arvensis extract	Citric acid
15	Scutellaria baicalensis root extract	Ethanolamine HCl
	Silk extract	Glycine
	Silver fir (<i>Abies pectinata</i>) extract	Phosphoric acid
	Sisal (<i>Agave rigida</i>) extract	Potassium phosphate
	Slippery elm extract	Potassium sodium tartrate
20	Soapberry (<i>Sapindus mukross</i>) extract	Sodium acetate, S. citrate
	Sophora angustifolia extract	Sodium lactate, S. phosphate
	Sophora flavescens root extract	Succinic acid
	Sophora japonica extract	Tromethamine
	Soybean (<i>Glycine soja</i>) extract	
25	Soy (<i>Glycine soja</i>) germ extract, protein, sterol	Carrier
	Spearmint (<i>Mentha viridis</i>) extract, oil	Acrylates copolymer, spherical powder
	Spinach (<i>Spinacia oleracea</i>) extract	Arginine
	Spiraea ulmaria extract	Caprylic/capric triglyceride
	Sunflower (<i>Helianthus annuus</i>) seed extract	Caprylic/capric/lauric triglyceride
30	Sweet almond (<i>Prunus amygdalus dulcis</i>) extract	Caprylic/capric/oleic triglyceride
	Sweet chery (<i>Prunus avium</i>) extract	Ceteareth-20
	Sweet cicely (<i>Anthriscus cerefolium</i>) extract	Coconut (<i>Cocos nucifera</i>) oil
	Sweet clover (<i>Melilotus officinalis</i>) extract	Cyclodextrin
	Sweet violet (<i>Viola odorata</i>) extract	Dipropylene glycol
35	Swertia chirata extract	Glyceryl caprylate, G. caprylate/caprate
	Tea (<i>Camillia sinensis</i>) extract	Hydrated silica
	Thyme (<i>Thymus vulgaris</i>) extract	Liposomes
	Tomato (<i>Solanum lycopersicum</i>) extract	magnesium silicate
	Tormentil (<i>Potentilla erecta</i>) extract	Methyl propanediol
40	Tuberose (<i>Polianthes tuberosa</i>) extract	PEG-8/SMDI copolymer
	Turmeric (<i>Curcuma longa</i>) extract	Potassium chloride
	Valerian (<i>Valeriana officinalis</i>) extract	PPG-12/SMDI Copolymer
	Walnut (<i>Juglans regia</i>) extract, leaf extract	PPG-51/SMDI Copolymer
	Water Lily (<i>Nymphaea alba</i>) root extract	Propylene carbonate, P. glycol
45	Watercress (<i>Nasturtium officinale</i>) extract	Serum albumin
	Wheat (<i>Triticum vulgare</i>) extract, protein	Sodium carboxymethyl beta-glucan
	Wheat (<i>Triticum vulgare</i>) germ extract	Sodium chloride
	Wheat bran lipids	sodium magnesium silicate
	White ginger (<i>Hedychium coronarium</i>) extract	Tapioca dextrin
50	White nettle (<i>Lamium album</i>) extract	
	Wild agrimony (<i>Potentilla anserina</i>) extract	Chelators
	Wild cherry (<i>Prunus serotina</i>) bark extract	beta-Alanine diacetic acid
	Wild indigo (<i>Baptista tinctoria</i>)	Calcium disodium EDTA

	Disodium EDTA, -copper EDTA HEDTA Malic acid	Xanthozylum bungeanum extract
5	Monostearyl citrate Pentasodium pentetate Pentetic acid Phytic acid	Cleansing Birch (<i>Betula alba</i>) leaf extract Lemongrass (<i>Cymbopogon schoenanthus</i>) extract Oat (<i>Avena sativa</i>) bran extract Passion flower (<i>Passiflora laurifolia</i>) fruit extract Witch hazel (<i>Hamamelis virginiana</i>) extract Yarrow (<i>Achillea millefolium</i>) extract
10	Potassium aspartate Sodium aspartate Sodium dihydroxyethylglycinate Sodium hexametaphosphate Tetrahydroxypropyl ethylenediamine	Conditioner Acetamide MEA 6-(N-Acetyl amino)-4-oxyhexyltrimonium chloride Acrylamidopropyltrimonium chloride/acrylamide copolymer Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer AMP-isostearoyl hydrolyzed wheat protein
15	Tetrasodium EDTA Tripotassium EDTA Trisodium EDTA, HEDTA	Apricot (<i>Prunus armeniaca</i>) kernel oil Behenalkonium chloride Behenamidopropyl dihydroxypropyl dimonium chloride Behenamidopropyl ethyldimonium ethosulfate Behenamidopropyl PG-dimonium chloride
	Cell stimulant	Behenamidopropylidimethylamine behenate Behenamine oxide Behenoyl PG-trimonium chloride Behenyl betaine Benzyltrimonium hydrolyzed collagen Canolamidopropyl betain Capramide DEA Caprylic/capric/lauric triglyceride Caprylyl pyrrolidone Cassia auriculata extract Cetamine oxide Cetearylkonium chloride Chitosan PCA Citric acid Cocamidopropyl dimethylamine, C.d. lactate, C.d. propionate Cocamidopropyl dimethylaminohydroxypropyl hydrolyzed collagen Cocamidopropylidimonium hydroxypropylhydrolyzed collagen Cocamidopropyl ethyldimonium ethosulfate Cocamidopropyl PG-dimonium chloride, C.P.c. phosphate Coco-morpholine oxide Coco/oleamidopropyl betaine Cocodimonium hydroxypropyl hydrolyzed hair keratin
20	Aesculus chinensis extract Artemisia apiacea extract Astrocaryum muru, A. tucuma extract Bactris gasipaes extract Borojoa sorbilis extract Calendula amurrensis extract Chrysanthemum morifolium extract Coccinea indica extract Comfrey (<i>Symphytum officinale</i>) leaf extract Condurango extract	
25	Dandelion (<i>Taraxacum officinale</i>) extract Echitea glauca extract Equisetum arvense extract Eucalyptus (<i>Eucalyptus globulus</i>) extract Euphorotium fortunei extract Euterpe precatoria extract Ficus racemosa extract Glycoproteins Hierochloe odorata extract	
30	Horse chestnut (<i>Aesculua hippocastanum</i>) extract Inga edulis extract Kadsura heteriloca extract Ligustrum lucidum extract Lysimachia foenum-graecum extract Mauritia flexosa extract Maximilliana regia extract	
35	Melaleuca bracteata, M. symphyocarp extract Nelumbium speciosum extract Ocimum basilicum extract, O. sanctum extract Paulownia imperialis extract Pfaffia spp. extract	
40	Pterocarpus marsupianus extract Rubus thunbergii extract Selinum spp. extract Shorea robusta extract	
45		
50		

	Cocodimonium hydroxypropyl hydrolyzed rice protein	Hydroxycetyl hydroxyethyl dimonium chloride
	Cocodimonium hydroxypropyl hydrolyzed silk	Hydroxyproline
5	Cocodimonium hydroxypropyl hydrolyzed soy protein	Hydroxypropyl chitosan
	Coconut alcohol	Hydroxypropyl guar hydroxypropyltrimonium chloride
10	N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Hydroxypropyl-bis-isostearylamidopropyldimonium chloride
	Collagen phthalate	Hydroxypropyl bis-stearylmonium chloride
15	Dibehenyl/diarachidyl dimonium chloride	Hydroxypropyltrimonium gelatin
	Dibehenyldimonium chloride	Hydroxypropyltrimonium hydrolyzed keratin
	Dicetylmonium chloride	H.h. silk
	Didecyldimonium chloride	Hydroxypropyltrimonium hydrolyzed wheat protein
	Dihydroxyethyl cocamine oxide	Isopropyl hydroxybutyramide dimethicone copolyol
20	Dihydroxyethyl dihydroxypropyl stearonium chloride	Isopropyl lanolate
	Dihydroxyethyl tallow glycinate	Isostearamidopropyl betaine, I. dimethylamine
	Dihydroxyethyl tallowamine oxide	Isostearamidopropyl dimethylamine gluconate
25	Dilauryl acetyl dimonium chloride	Isostearamidopropyl dimethylamine glycolate
	Dilinoleamidopropyl dimethylamine	Isostearamidopropyl dimethylamine lactat
	Dimethyl hydrogenated tallowamine	Isostearamidopropyl ethyldimonium ethosulfate
	Dimethyl lauramine, D.I. isostearate	Isostearamidopropyl laurylacetodimonium chloride
	Dimethyl myristamine, soyamine, stearamine	Isostearamidopropyl morpholine, I.m. lactate
30	Dimethylamidopropylamine dimerate	Isostearamidopropyl morpholine oxide
	Disodium hydrogenated cottonseed glyceride sulfosuccinate	Isostearamidopropyl PG-dimonium chloride
	Disodium laureth sulfosuccinate	Isostearaminopropalkonium chloride
	Disodium lauroamphodiacetate	Isostearyl hydrolyzed animal protein
	Distearyldimonium chloride	Isostearyl amidopropyl dihydroxypropyl dimonium chloride
35	Ethyl ester of hydrolyzed keratin	Lactoglobulin
	N-Ethylether-bis-1,4-(N-isostearylaminopropyl-N,N-dimethyl ammonium chlo	Lauramidopropyl dimethylamine
	Glutamic acid	Lauramidopropyl PG-dimonium chloride, I.P.c.
	Glyceryl collagenate	phosphate
40	Glycine	Lauramine oxide
	Guar hydroxypropyltrimonium chloride	Lauroampho PG-glycinate phosphate
	Henna (Lawsonia inermis) extract	Lauroyl hydrolyzed collagen, L.h. elastin
	Hydrogenated tallowamine oxide	Lauroyl silk amino acids
	Hydrogenated tallowtrimonium chloride	Lauryl methyl gluceth-10 hydroxypropyl-dimonium chloride
45	Hydrolyzed conchiorin protein	Lauryl phosphate, L. pyrrolidone
	Hydrolyzed egg protein	Lauryldimonium hydroxypropyl hydrolyzed collagen, keratin, soy protein
	Hydrolyzed extensin	Linoleamidopropyl dimethylamine
	Hydrolyzed fibronectin	Milk amino acids
	Hydrolyzed fish protein	Milk protein (Lactis proteinum)
50	Hydrolyzed keratin	Myristalkonium chloride
	Hydrolyzed lactalbumin	Myristamidopropyl betaine, M. dimethylamine
	Hydrolyzed milk protein	Myrtrimonium bromide
	Hydrolyzed oats	Oat (Avena sativa) protein
	Hydrolyzed reticulin	Oleamide
	Hydrolyzed soy protein	Oleamidopropyl betaine, O. dimethylamine
	Hydrolyzed sweet almond protein	
	Hydrolyzed wheat protein/PVP copolymer	
	Hydrolyzed wheat protein polysiloxane polymer	

	Oleamidopropyl dimethylamine hydrolyzed collagen	Rice peptide
	Oleamidopropylamine oxide	Ricinoleamidopropyl-dimonium ethosulfate
	Oleamine	Ricinoleamidopropyl betaine
5	Oleamine oxide	Ricinoleamidopropyl dimethylamine lactate
	Oleoyl sarcosine	Ricinoleamidopropyl ethyldimonium ethosulfate
	Oleyl betaine	Ricinoleamidopropyltrimonium chloride
	Oleyl dimethylamidopropyl ethonium ethosulfate	Ricinoleamidopropyltrimonium ethosulfate
	Palmitamidopropyl betaine	Silicone quaternium-3, -4
10	Palmitamidopropyl dimethylamine	Silk amino acids
	Palmitamine, P. oxide	Sodium/TEA-lauroyl collagen amino acids
	Panthenyl hydroxypropyl steardimonium chloride	Sodium/TEA-lauroyl hydrolyzed keratin
	PEG-2 milk solids	Sodium/TEA-lauroyl keratin amino acids
	PEG-2 oleammonium chloride	Sodium citrate
15	PEG-3 lauramine oxide	Sodium cocoyl hydrolyzed soy protein
	PEG-5 stearyl ammonium lactate	Sodium hydrogenated tallow dimethyl glycinate
	PEG-15 cocomonium chloride	Sodium lauroyl collagen, keratin amino acids
	PEG-15 cocopolyamine	Sodium lauroyl wheat amino acids
	PEG-15 tallowmonium chloride	Sodium stearoamphoacetate
20	PEG-27	Soluble keratin, wheat protein
	PEG-40	Soyamide DEA
	PEG-85 lanolin	Soyamidopropyl benzylmonium chloride
	PEG-7000	Soyamidopropyl betaine, S. dimethylamine
	Polydimethicone copolyol	Soyamidopropyl ethyldimonium ethosulfate
25	Polymethacrylamidopropyltrimonium chloride	Soyethyl morpholinium ethosulfate
	Polyoxyethylene dihydroxypropyl linoleaminium chloride	Soyethyldimonium ethosulfate
	Polyquaternium-2, -5, -6, -11, -16	Stearamide MEA
	Polyquaternium-17, -18, -24, -29, -44	Stearamidoethyl diethylamine, ethanolamine
30	Potassium dimethicone copolyol panthenyl phosphate	Stearamidopropyl benzyl dimonium chloride
	Potassium lauroyl collagen amino acids	Searamidopropyl cetearyl dimonium tosylate
	Potassium lauroyl hydrolyzed soy protein	Stearamidopropyl dimethylamine stearate
	Potassium lauroyl wheat amino acids	Stearamidopropyl ethyldimonium ethosulfate
35	Potassium stearoyl hydrolyzed collagen	Stearamidopropyl morpholine lactate
	PPG-5 lanolin alcohol ether	Stearamidopropyl PG-dimonium chloride
	PPG-9 diethylmonium chloride	phosphate
	PPG-20 lanolin alcohol ether	Stearmine oxide
	Proline	Steardimonium hydroxypropyl hydrolyzed collagen, keratin
40	Propylene glycol stearate	Stearimonium panthenol
	PVP/dimethiconylacrylate/polycarbamyl/polyglycol ester	Stearoyl amidoethyl diethylamine
	PVP/dimethylaminoethylmethacrylate copolymer	Steartrimonium bromide
45	PVP/dimethylaminoethylmethacrylate/ polycarbamyl/polyglycol ester	Stearyl dimethicone
	PVP/hydrolyzed wheat protein copolymer	Tallowamidopropyl dimethylamine
	Quaternium-22, -26, -33, -61, -62, -70, -80	Tetramethyl trihydroxy hexadecane
	Quaternium-76 hydrolyzed collagen	TEA-cocoyl hydrolyzed collagen
50	Rapeseedamidopropyl benzylmonium chloride	Trachea hydrolysate
	Rapeseedamidopropyl epoxypropyl dimonium chloride	Tricetylmonium chloride
	Rapeseedamidopropyl ethyldimonium ethosulfate	Tridecyl salicylate

	Yeast powder, deproteinated	Ammonium laureth sulfate
	Coupling agent	
5	Acetyl monoethanolamine	Ammonium lauryl sulfate
	Butyloctanol	Capramide DEA
	Myreth-3	Cocamidopropyl dimethylamine lactate
	Oleyl alcohol	Decyl glucoside
	PPG-10 butanediol	Decyltetradeceth-25
10	PPG-10 cetyl ether	DEA lauryl sulfate
	PPG-10 oleyl ether	Diamyl sodium sulfosuccinate
	PPG-15 stearyl ether	Dicyclohexyl sodium sulfosuccinate
	PPG-22 butyl ether	Diisobutyl sodium sulfosuccinate
	PPG-23 oleyl ether	Disodium caproamphodiacetate
	PPG-50 oleyl ether	Disodium caproamphodipropionate
15	Trideceth-7 carboxylic acid	Disodium capryloamphodiacetate
	Denaturant	Disodium capryloamphodipropionate
	Brucine sulfate	Disodium cetearyl sulfosuccinate
20	Denatonium benzoate, saccharide	Disodium cocamido MEA-sulfosuccinate
	Nicotine sulfate	Disodium cocamido MIPA-sulfosuccinate
	Sucrose octaacetate	Disodium cocoamphodipropionate
	Thymol	Disodium deceth-6 sulfosuccinate
	Dental powder	Disodium isodecyl sulfosuccinate
25	Dicalcium phosphate	Disodium lauramido MEA-sulfosuccinate
	Silica	Disodium lauramido PEG-2 sulfosuccinate
	Sodium monofluorophosphate	Disodium laureth sulfosuccinate
	Stannous fluoride	Disodium lauroamphodiacetate
30	Deodorant	Disodium lauroamphodipropionate
	Abietic acid	Disodium lauryl sulfosuccinate
	Azadirachta indica extract	Disodium myristamido MEA-sulfosuccinate
	Chlorophyllin-copper complex	Disodium nonoxynol-10 sulfosuccinate
	Eugenia jambolana extract	Disodium oleamido PEG-2 sulfosuccinate
35	Farnesol	Disodium PEG-4 cocoamido MIPA-sulfosuccinate
	Fermented vegetable	Disodium ricinoleamido MEA-sulfosuccinate
	Mauritia flexosa extract	Disodium tallowiminodipropionate
	Salvia miltiorrhiza extract	Dodecylbenzene sulfonic acid
	Sodium aluminum chlorohydroxy lactate	Dodoxynol-6, -9
40	Spondias amara extract	Isopropylamine dodecylbenzenesulfonate
	Triethyl citrate	Isostearamidopropyl betaine
	Zinc phenol sulfonate, Z. ricinoleate	Isosteareth-6 carboxylic acid
		Isostearoamphopropionate
	Depilatory	Isostearyl hydroxyethyl imidazoline
45	Barium sulfide	Lauramidopropylamine oxide
	Beeswax, oxidized	Laureth-11
	Calcium thioglycolate	Lauroampho PG-glycinate phosphate
	L-cysteine HCL	Lauryl glucoside, L. phosphate
	Potassium thioglycolate	Magnesium laureth sulfate, M. lauryl sulfate
50	Sodium thioglycolate	Magnesium PEG-3 cocamide sulfate
	Thioglycerin	MEA-dodecylbenzenesulfonate
		MEA-laureth sulfate
	Detergent	MEA-lauryl sulfate
		MIPA-lauryl sulfate
		Myristamine oxide
		Myristic acid
		Nonoxynol-10

	Oleoamphohydroxypropyl sulfonate	Benzalkonium chloride
	Oleth-12, -15	Chlorophene
	Oleyl betaine	Didecyldimonium chloride
5	Palmitamidopropyl betaine	Myristalkonium saccharinate
	PEG-10 glyceryl stearate	Shikokin
	PEG-15 glyceryl stearate	Sodium capryloamphoacetate
	PEG-25 glyceryl isostearate	Tea tree (<i>Melaleuca alternifolia</i>) oil
	Potassium cocoyl hydrolyzed collagen	p-Tertiaryphenol
10	Sodium caproamphoacetate	Dispersant
	Sodium cocoamphoacetate	Alkylated polyvinylpyrrolidone
	Sodium cocoamphopropionate	C20-40, C30-50, C40-60 alcohols
	Sodium cocomonoglyceride sulfate	Castor (<i>Ricinus communis</i>) oil
	Sodium cocoyl hydrolyzed soy protein	Ceteareth-20
	Sodium cocoyl isethionate	Cetyl PPG-2 isodeceth-7 carboxylate
15	Sodium C12-15 pareth-25 sulfate	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate
	Sodium C14-16 olefin sulfonate	Decaglycerol monodioleate
	Sodium C14-17 alkyl sulfosulfonate	Diisocetyl dodecanedioate
	Sodium deceth sulfate	Diisostearyl adipate
	Sodium decyl diphenyl ether sulfonate	Dimethicone copolyol methyl ether
20	Sodium dodecylbenzenesulfonate	Diocetylstearyl dimer dilinoleate
	Sodium dodecyldiphenyl ether sulfonate	Diocetylstearyl dodecanedioate
	Sodium iodate	Ethyl hydroxymethyl oleyl oxazoline
	Sodium laureth-2 sulfate	Glyceryl caprylate, G. caprylate/caprate
	Sodium laureth-3 sulfate	Glyceryl diisostearate
25	Sodium laureth-7 sulfate	Hydrogenated castor oil, H. lecithin
	Sodium laureth-12 sulfate	Hydrogenated tallow glycerides
	Sodium laureth-13-carboxylate	Isobutylene/MA copolymer
	Sodium laureth sulfate	Isocetyl alcohol
	Sodium lauriminodipropionate	Isopropyl C12-15-pareth-9-carboxylate
30	Sodium lauroamphopropionate	Isostearyl neopentanoate
	Sodium lauroyl methyl alaninate	Lanolin acid
	Sodium lauryl phosphate, S.I. sulfate	Laureth-4, -6, -16
	Sodium lauryl sulfoacetate	Melanin
	Sodium methyl oleoyl taurate	Nonoxynol-2, -18, -20, -30, -40
35	Sodium methyl cocoyl taurate	Octoxynol-5, -10
	Sodium methyllauroyltaurate	Octoxynol 16, 30, 40, 70
	Sodium methylnaphthalenesulfonate	Octyldodeceth-5
	Sodium myreth sulfate	Octyldodecyl/dimethicone copolyol citrate
	Sodium myristyl sulfate	Oleth-40
40	Sodium octyl sulfate, oleyl sulfate	Oleyl alcohol
	Sodium POE alkyl ether acetate	PEG-5 castor oil, glycetyl sesquioleate
	Sodium trideceth-7 carboxylate	PEG-6 beeswax
	Sodium trideceth sulfate	PEG-8/SMDI copolymer
	Sodium tridecyl sulfate	PEG-9 castor oil, oleate, stearate
45	Steareth-11, -30	PEG-10 dioleate, stearamine
	TEA-dodecylbenzenesulfonate	PEG-12 beeswax
	TEA-laureth sulfate	PEG-12 glycetyl dioleate, laurate
	TEA-lauryl sulfate	PEG-15 castor oil
	TEA-palm kernel sarcosinate	PEG-20 almond glycerides
50	TEA-PEG-3 cocamide sulfate	PEG-20 glycetyl isostearate
	Undecylenamidopropyl betaine	PEG-20 sorbitan triisostearate
	Disinfectant	

	PEG-25 castor oil	Behenamidopropyl dihydroxypropyl dimonium chloride
	PEG-30 dipolyhydroxystearate	Behenoxy dimethicone
	PEG-40 hydrogenated castor oil PCA isostearate	Behenyl alcohol, B. behenate
	PEG-60 shea butter glycerides	Behenyl erucate, B. isostearate
5	Poloxamer 101, 122, 181, 182, 184	Benzyl laurate
	Polyglyceryl-2 sesquoisostearate	Bladderwrack (<i>Fucus vesiculosus</i>) extract
	Polyglyceryl-3 diisostearate, oleate	Borage (<i>Borago officinalis</i>) seed oil
	Polyglyceryl-5 distearate	Borageamidopropyl phosphatidyl PG-dimonium chloride
10	Polyglyceryl-6 mixed fatty acids	Brain extract
	Polyglyceryl-10 diisostearate, distearate	Brazil nut (<i>Bertholetta excelsa</i>) oil
	Polyglyceryl-10 decaoleate	Butyl myristate, oleate, stearate
	Polyhydroxystearic acid	Butyloctanol
	Polysorbate 40, 80	Butyloctyl oleate
	Potassium polyacrylate	C12-13, C12-16, C14-15 alcohols
15	PPG-3 PEG-6 oleyl ether	C12-15 alcohols octanoate
	PPG-9 diethylmonium phosphate	C12-15 alkyl benzoate
	PPG-12/SMDI Copolymer	dl-C12-15 alkyl fumarate
	PPG-15 stearyl ether	C12-15 alkyl lactate
	PPG-25, PPG-40 diethylmonium chloride	Camellia kissi oil
20	PPG-51/SMDI Copolymer	Tea (<i>Camellia sinensis</i>) oil
	PVP/eicosene copolymer	C10-30 cholesterol/lanostearol esters
	PVP/hexadecene copolymer	Canola oil
	Rapeseed oil, ethoxylated high erucic acid	Caprylic/capric triglyceride
	Ricinoleyl alcohol	Caprylic/capric triglyceride PEG-4 esters
25	Sodium ceteth-13-carboxylate	Caprylic/capric/lauric triglyceride
	Sodium lignosulfonate, S. polymethacrylate	Caprylic/capric/linoleic triglyceride
	Sodium polynaphthalenesulfonate	Caprylic/capric/oleic triglycerides
	Sorbitan oleate	Caprylic/capric/stearic triglyceride
	Steareth-10	Caprylic/capric/succinic triglyceride
30	Tricontanyl PVP	Capicum frutescens oleoresin
	Triisostearin PEG-6 esters	Carrot (<i>Daucus carota sativa</i>) oil
	Trioctyldodecyl citrate	Cashew (<i>Anacardium occidentale</i>) nut oil
	Emollient	Castor (<i>Ricinus communis</i>) oil
35	Acetylated glycol stearate	Cetearyl behenate, C. candelillate
	Acetylated hydrogenated lanolin	Cetearyl isononanoate, C. octanoate
	Acetylated hydrogenated lard glyceride	Cetearyl palmitate, C. stearate
	Acetylated hydrogenated vegetable glyceride	Ceteth-10
	Acetylated lanolin, A.I. alcohol	Cetostearyl stearate
40	Acetylated lard glyceride	Cetyl C12-15 pareth-9 carboxylate
	Acetylated monoglycerides	Cetyl acetate, C. alcohol
	Acetylated palm kernel glycerides	Cetyl esters, C. lactate
	Aleurites moluccana ethyl ester	Cetyl myristate, C. octanoate
	Allantoin	Cetyl oleate, C. palmitate
45	Aluminum/magnesium hydroxide stearate	Cetyl PPG-2 isodeceth-7 carboxylate
	AMP-isostearoyl hydrolyzed soy protein	Cetyl ricinoleate, C. stearate
	Apricot (<i>Prunus armeniaca</i>) kernel oil	Cetyl stearyl octanoate
	Arachidyl behenate	Chia (<i>Salvia hispanica</i>) oil
	Argania spinosa oil	Cholesteric esters
50	Avocado (<i>Persea gratissima</i>) oil, unsaponifiables	Cholesterol
	Avocado oil ethyl ester	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate
	Babassu (<i>Orbignya oleifera</i>) oil	
	Betyl isostearate, B. stearate	

	Cholesteryl hydroxystearate	Dimethiconol stearate
	Cholesteryl stearate	Dimethyl lauramine oleate
	Choleth-24	Diocetyl adipate
5	C18-70 Isoparaffin	Diocetyl dimer dilinoleate
	C10-18, C12-18 triglycerides	Diocetyl cyclohexane
	C12-15 linear alcohols 2-ethylhexanoate	Diocetyl dodecyl dimer dilinoleate
	Cocamidopropyl PG-dimonium chloride	Diocetyl dodecyl dodecanedioate
	Cocoa (Theobroma cacao) butter	Diocetyl malate, D. sebacate, succinate
	Coco-caprylate/caprate	Dipentaerythritol fatty acid ester
10	Coco-rapeseedate	Dipentaerythrityl hexacaprylate/hexacaprate
	Coconut (Cocos nucifera) oil	Dipentaerythrityl hexahydroxystearate/isostearate
	Cocoyl hydrolyzed soy protein	Distearyl dimethylamine dilinoleate
	Collagen hthalate	Ditridecyl adipate
	Colloidal oatmeal	Dog rose (Rosa canina) hips oil
15	Comfrey (Symphytum officinale) leaf extract	Egg (Ovum) yolk extract
	Corn (Zea mays) oil	Emu (Dromiceius) oil
	Corn poppy (Papaver rhoeas) extract	Erucyl erucate
	Cottonseed (Gossypium) oil	Ethyl avocadate
	Cuttlefish extract	Ethylhexyl isopalmitate
20	Cyclomethicone	2-Ethylhexyl isostearate
	Deceth-4 phosphate	Ethyl linoleanate, E. minkate
	Decyl oleate	Ethyl morrhuate, E. myristate
	Decyltetradecanol	Ethyl oleate, E. olivate
	Dialkydimethylpolysiloxane	Evening primrose (Oenothera biennis) extract, oil
25	Dibutyl sebacate	Glycereth-4,5-lactate
	Dicapryl adipate	Glycereth-5 lactate
	Dicaprylyl ether, D. maleate	Glycereth-7 benzoate
	Diethylene glycol diisononanoate	Glycereth-7 diisononanoate
	Diethylene glycol dioctanoate	Glycereth-7 triacetate
30	bis-Diglyceryl/caprylate/caprate/isostearate/ hydroxystearate/adipate	Glycereth-7 trioctanoate
	bis-Diglyceryl/caprylate/caprate/isosteareth/ stearate/hydroxystearate/adipate	Glycereth-12, -26
	Dihydroabietyl behenate	Glycerol tricaprylate/caprate
35	Dihydroxyethyl tallowamine oleate	Cycceryl adipate, G. dioleate
	Diisobutyl adipate	Gycceryl isostearate, G. lanolate
	Diisocetyl adipate, dodecanedioate	Gycceryl linoleate, G. monopyroglutamate
	Diisodecyl adipate	Gycceryl myristate, G. oleat
	Diisopropyl adipate, dimer dilinoleate	Gycceryl ricinoleate
40	Diisopropyl sebacate	Gycceryl triacetyl hydroxystearate
	Diisostearoyl trimethylolpropane siloxy silicate	Gycceryl triacetyl ricinoleate
	Diisostearyl adipate	Glycosaminoglycans
	Diisostearyl dimer dilinoleate	Glycosphingolipids
	Diisostearyl fumarate, D. malate	Gold of Pleasure oil
45	Dilinoleic acid	Grape (Vitis vinifera) seed oil
	Dimethicone	Hazel (Corylus avellana) nut oil
	Dimethicone copolyol	Helianthus annum ethyl ester
	Dimethicone copolyol acetate, D.c. almondate	Hexadecyl isopalmitate
50	Dimethicone copolyol isostearate, D.c. lactate	Hexamethyldisiloxane
	Dimethicone copolyol methyl ether	hexyl laurate
	Dimethicone copolyol phthalate	hexyldecanol
	Dimethicone propylethylenediamine behenate	Hexyldecyl stearate
		honey extract
		Hybrid safflower (Carthamus tinctorius) oil
		Hybrid sunflow (Helianthus annus) oil

	Hydrogenated C6-14 olefin polymers	Isosorbide laurate
	Hydrogenated castor oil	Isostearic acid
	Hydrogenated castor oil laurate	Isostearyl alcohol
	hydrogenated coconut oil	Isostearyl behenate, I. benzoate
5	Hydrogenated cottonseed oil	Isostearyl diglyceryl succinate
	Hydrogenated C12-18 triglycerides	Isostearyl erucate, I. erucyl erucate
	Hydrogenated lanolin	Isostearyl isostearate, I. lactate
	Hydrogenated lanolin, distilled	Isostearyl malate, I. myristate
	Hydrogenated lecithin	Isostearyl neopentanoate, palmitate
10	Hydrogenated milk lipids	Isostearyl stearoyl stearate
	Hydrogenated mink oil	Isostearyl amidopropyl dihydroxypropyl dimonium chloride
	Hydrogenated palm kernel glycerides	Isotridecyl isononanoate
	Hydrogenated palm oil	Isotridecyl myristate
	Hydrogenated polyisobutene	Jojoba (<i>Buxus chinensis</i>) oil
15	Hydrogenated soybean oil	Jojoba butter, J. esters
	Hydrogenated starch hydrolysate	Jojoba oil, synthetic
	Hydrogenated tallow glyceride	Kukui (<i>Aleurites molaccana</i>) nut oil
	Hydrogenated tallow glyceride lactate	Lactamide DGA
	Hydrogenated turtle oil	Laneth-10 acetate
20	Hydrogenated vegetable glycerides	Lanolin, L. acid
	Hydrogenated vegetable oil	Lanolin alcohol, L. oil
	Hydrolyzed collagen	Lanolin, ultra anhydrous
	Hydrolyzed conchiorin protein	Lanolin wax
	Hydrolyzed keratin	Lanostearol
25	Hydrolyzed mushroom (<i>Tricholoma matsutake</i>) extract	Lard glyceride
	Hydrolyzed oat protein	Laureth-2, -3
	Hydroxylated lanolin	Laureth-2 acetate, L. benzoate
	Hydroxylated milk glycerides	Laureth-2-octanoate
30	Hydroxystearic acid	Lauric/palmitic/oleic triglyceride
	butter	Lauryl behenate, L. lactate
	Isobutyl palmitate, I. stearate	Lauryl phosphae
	Isocetyl behenate, I. octanoate	Lauryldimethylamine isostearate
	Isocetyl palmitate, I. salicylate	Lesquerela fendleri oil
35	Isocetyl stearate	Linoleic acid
	Isodeceth-2 cocoate	Macadamia ternifolia nut oil
	Isodecyl citrate, I. cocoate	Maleated soybean oil
	Isodecyl isononanoate, I. laurate	Mango (<i>Magnifera indica</i>) oil, seed oil
	Isodecyl neopentanoate	Mango kernel oil
40	Isodecyl octanoate, I. oleate	Meadowfoam (<i>Limnanthes alba</i>) seed oil
	Isodecyl stearate	Menhaden (<i>Brevoortia tyrannus</i>) oil
	Isododecane	Methyl acetyl ricinoleate
	Isoeicosane	Methyl gluceth-20
	Isohexadecane	Methyl gluceth-20 benzoate, M.g. distearate
45	isononyl isononanoate	Methyl hydroxystearate, M. ricinoleate
	Isopentyldiol	Microcrystalline wax
	Isopropyl avocadate	Mineral oil (<i>Paraffinum liquidum</i>)
	Isopropyl C12-15-pareth-9-carboxylate	Mink oil
	Isoproyl isostearate	Musk rose (<i>Rosa moschata</i>) oil
50	Isopropyl lanolate, I. linoleate	Myreth-3
	Isopropyl myristate, I. palmitate	Myreth-3 caprate, M. laurate
	Isopropyl PPG-2-isodeceth-7 carboxylate	Myreth-3 myristate, M. octanoate
	Isopropyl sterate	Myristyl alcohol, M. lactate

	Myristyl myristate, M. octanoate	PEG-9 stearyl stearate
	Myristyl propionate, M. stearate	PEG-10 stearyl stearate
	Neatsfoot oil	PEG-12
5	Neem (<i>Melia azadirachta</i>) seed oil	PEG-12 dioleate, P. palm kernel glycerides
	Neopentyl glycol dicaprate	PEG-15 cocamine oleate/phosphate
	Neopentyl glycol dicaprate/dicaprylate	PEG-18
	Neopentyl glycol diisooctanoate	PEG-20
	Neopentyl glycol dioctanoate	PEG-20 hydrogenated castor oil isostearate
10	Oat (<i>Avena sativa</i>) bran extract, extract, flour	PEG-20 hydrogenated castor oil triisostearate
	Octacosanyl stearate	PEG-20 hydrogenated lanolin
	Octyl cocoate	PEG-24 hydrogenated lanolin
	Octyl hydroxystearate, O. isononanoate	PEG-25 PABA, P. propylene glycol stearate
	Octyl neopentanoate, O. octanoate	PEG-40 glyceryl laurate
	Octyl oleate, O. palmitate	PEG-40 hydrogenated castor oil isostearate
15	Octyl pelargonate, O. stearate	PEG-40 hydrogenated castor oil laurate
	Octyldecanol	PEG-40 hydrogenated castor oil triisostearate
	Octyldodecanol	PEG-40 jojoba oil
	Octyldodecyl behenate, O. benzoate	PEG-50 hydrogenated castor oil laurate
20	Octyldodecyl erucate, O. myristate	PEG-50 hydrogenated castor oil triisostearate
	Octyldodecyl oleate, O. ricinoleate	PEG-60 shea butter glycerides
	Octyldodecyl stearate	PEG-70 mango glycerides
	bis-Octyldodecyl stearoyl dimer dilinoleate	PEG-75
	Octyldodecyl stearoyl stearate	PEG-75 lanolin, P. shea butter glycerides
	Oleamine oxide	PEG-75 shorea butter glycerides
25	Oleic/palmitoleic/linoleic glycerides	PEG-150
	Oleic alcohol	PEG/PPG-17/6 copolymer
	Oleostearine	Pentaerythrityl dioleate
	Oleyl alcohol, O. erucate, O. oleate	Pentaerythrityl
30	Olive (<i>Olea europaea</i>) oil	isostearate/caprate/caprylate/adipate
	Orange (<i>Citrus aurantium dulcis</i>) peel wax	Pentaerythrityl stearate
	Orange roughy (<i>Hoplostethus atlanticus</i>) oil	Pentaerythrityl stearate/caprate/caprylate/adipate
	Palm (<i>Elaeis guineensis</i>) oil	Pentaerythrityl tetracaprylate/tetracaprate
	Palm kernel glycerides	Pentaerythrityl tetraisononanoate, P.
	Palmitic acid	tetraisostearate
35	Panthenyl triacetate	Pentaerythrityl tetralaurate, P. tetraoctanoate
	Partially hydrogenated canola oil	Pentaerythrityl tetraoleate, P. tetrapelargonate
	Partially hydrogenated soybean oil	Pentaerythrityl tetrastearate
	Peach (<i>Prunus persica</i>) extract	Perfluorodecalin
	Peanut (<i>Arachis hypogaea</i>) oil	Perfluoropolymethylisopropyl ether
40	PEG-2 diisononanoate, P. dioctanoate	Petrolatum
	PEG-2 milk solids	Phenethyl dimethicone
	PEG-4	Phenyl dimethicone, P. methicone, P.
	PEG-4 diheptanoate, P. dilaurate	trimethicone
	PEG-5 C8-12 alcohols citrate	Phytantriol
45	PEG-5 C14-18 alcohols citrate	Pistachio (<i>Pistacia vera</i>) nut oil
	PEG-5 hydrogenated castor oil	Placental enzymes
	PEG-5 hydrogenated castor oil triisostearate	Pollen extract
	PEG-6	Poloxamer 105 benzoate
	PEG-6 capric/caprylic glycerides	Poloxamer 182 dibenzoate
50	PEG-7 glyceryl cocoate	Polybutene
	PEG-8	Polydecene
	PEG-8 dilaurate, P. dioleate	Polydimethicone copolyol
	PEG-8/SMDI copolymer	Polyethylene glycol

	Polyglyceryl-2 diisostearate, P. tetraisostearate	PPG-30
	Polyglyceryl-2 triisostearate	PPG-30 cetyl ether
	Polyglyceryl-3 diisostearate, P. oleate	PPG-40 butyl ether
5	Polyglyceryl-3 stearate	PPG-50 cetyl ether, P. oleyl ether
	Polyglyceryl-6 dioleate	PPG-51/SMDI Copolymer
	Polyglyceryl-10 decaoleate, P. decastearate	PPG-53 butyl ether
	Polyglyceryl-10 tetraoleate	Propylene glycol ceteth-3 acetate
10	Polyisobutene	Propylene glycol dicaprylate
	Polyisobutene/isoheptadecacontane	Propylene glycol dicaprylate/dicaprate
	Polyisobutene/isoctabexacontane	Propylene glycol diisostearate, P.g. dioctanoate
	Polyisoprene	Propylene glycol dipelargonate
	Polyoxyethylene polyoxypropylene glycol	Propylene glycol isoceteth-3-acetate
15	Polyquaternium-2	Propylene glycol isostearate, P.g. laurate
	Polysiloxane polyalkylene copolymer	Propylene glycol myristate
	Polysorbate 40	Propylene glycol myristyl ether acetate
	Potassium dimethicone copolyol phosphate	Propylene glycol stearate, SE
	PPG-2-buteth-3	Pumpkin (<i>Cucurbita pepo</i>) seed oil
20	PPG-2 lanolin alcohol ether	Quinoa (<i>Chenopodium quinoa</i>) oil
	PPG-2 myristyl ether propionate	Rapeseed (<i>Brassica campestris</i>) oil
	PPG-3 hydrogenated castor oil	Rice (<i>Oryza sativa</i>) bran oil, bran wax
	PPG-3 myristyl ether	Rice fatty acid
	PPG-5-buteth-7	Safflower (<i>Carthamus tinctorius</i>) oil
	PPG-5-laureth-5	Salmon (<i>Salmo</i>) egg extract
25	PPG-5 butyl ether	Sesame (<i>Sesamum indicum</i>) oil
	PPG-5 lanolin wax	Shark liver oil
	PPG-5 pentaerythrityl ether	Shea butter (<i>Butyrospermum parkii</i>)
	PPG-7-buteth-10	Shea butter (<i>Butyrospermum parkii</i>) extract
		Shea butter, ethoxylate
30	PPG-8/SMDI copolymer	Shorea stenoptera butter
	PPG-9	Silybum marianum ethyl ester
	PPG-9-buteth-12	Sitostaryl acetate
	PPG-9 butyl ether	Skin lipids
	PPG-10 butanediol, P. cetyl ether	Slippery elm extract
35	PPG-10 methyl glucose ether	Sodium C8-16 isoalkylsuccinyl lactoglobulin sulfonate
	PPG-10 oleyl ether	Sodium carboxymethyl beta-glucan
	PPG-11 stearyl ether	Sodium ceteth-13-carboxylate
	PPG-12-buteth-16	Sodium dimethicone copolyol acetyl methyltaurate
40	PPG-12-PEG-50 lanolin	Soium glyceryl oleate phosphate
	PPG-12-PEG-65 lanolin oil	Sodium hyaluronate, S. polymethacrylate
	PPG-12/SMDI Copolymer	Sorbeth-20
	PPG-14 butyl ether	Sorbitan isostearate, S. palmitate
	PPG-15 butyl ether, P. stearyl ether	Sorbitan sesquioleate, S. sesquistearate
45	PPG-15 stearyl ether benzoate	Sorbitan trioleate
	PPG-16 butyl ether	Soybean (<i>Glycine soja</i>) oil
	PPG-18 butyl ether	Spermaceti
	PPG-20	Sphingolipids
	PPG-20-buteth-30	Squalene
	PPG-20 cetyl ether	Stearamidopropyl cetearyl dimonium tosylate
50	PPG-24-glycereth-24	Steareth-4 stearate
	PPG-26	Stearic acid, S. hydrazide
	PPG-27 glyceryl ether	Stearoxy dimethicone
	PPG-28-buteth-35	

	Stearoxymethicone/dimethicone copolymer	2-Aminobutanol
	Staryl behenate, S. benzoate	Ammonium acrylates/acrylonitrogens copolymer
	Staryl dimethicone, S. erucate	Arachidyl alcohol
	Staryl heptanoate, S. propionate	Beeswax
5	Staryl stearate	Behenamidopropyl dihydroxypropyl dimonium chloride
	Staryl stearoyl stearate	Beheneth-5, -10, -20, -30
	Sucrose cocoate	Behenic acid
	Sunflower (<i>Helianthus annuus</i>) seed oil	Behenyl betain
10	Sweet almond (<i>Prunus amygdalus dulcis</i>) oil	Borageamidopropyl phosphatidyl PG-dimonium chloride
	Sweet cherry (<i>Prunus avium</i>) pit oil	Butyloctanol
	Synthetic jojoba oil	C12-20 acid PEG-8 ester
	Synthetic wax	C18-36 acid
	Tallow	Calcium dodecylbenzene sulfonate
	Tetradecycleicosyl stearate	Calcium protein complex
15	Tocopheryl acetate	Calcium stearate
	Tricaprin	Calcium stearoyl lactylate
	Tricaprylin	Capramide DEA
	Tricaprylyl citrate	Caprylic/capric acid
	Tricholoma matsutake extract	Caprylic/capric glycerides
20	Tridecyl behenate, T. cocoate	Castor oil, ethoxylate
	Tridecyl erucate, T. neopentanoate	Cetalkonium chloride
	Tridecyl octanoate, T. stearate	Ceteareth-2 -4 -5 -6
	Tridecyl stearoyl stearate	Ceteareth-2 phosphate
	Tridecyl trimellitate	Ceteareth-5 phosphate
25	Trihexyldecyl citrate	Ceteareth-8 -10 -11 -12
	Triisooctyl citrate	Ceteareth-10 phosphate
	Triisostearin	Ceteareth-15 -17 -20 -25
	Triisostearyl citrate	Ceteareth-27 -29 -30 -34
30	Triisostearyl trilinoleate	Cetearyl alcohol
	Trilauryl	Cetearyl glucoside
	Trilinolein	Ceteth-2 -4 -6 -10 -12 -13
	Trimethylolpropane tricaprylate/tricaprante	Ceteth-16 -20 -25 -30 -33
	Trimethylolpropane tricocoate	Cetethyldimonium bromide
	Trimethylolpropane trilaurate	Cetrimonium chloride
35	Trimyristin	Cetyl dimethicone copolyol
	Trioctanoin	Cetyl phosphate
	Trioctyldodecyl citrate	Cholesterol
	Triolein	Choelth-10 -15 -24
	Tripalmitin	Cocamide DEA, C. MEA
40	Tripropylene glycol citrate	Cocamidopropyl dimethylamine
	Tristearin	Cocamidopropyl PG-dimonium chloride
	Triundecanoin	phosphate
	Vegetable oil	Cocamine
	Walnut (<i>Juglans regia</i>) oil	Coceth-7 carboxylic acid
45	Wheat (<i>Triticum vulgare</i>) germ oil	Coconut acid
	Emulsifier:	Copper protein complex
	Acetylated hydrogenated lard glyceride	Cottonseed glyceride
	Acetylate hydrogenated vegetable glyceride	C12-13 pareth-3 -4 -9 -23
50	Acetylated monoglycerides	C16-18 pareth-3 -5.5 -13 -19
	Acrylates/C10-C30 alkyl acrylate crosspolymer	Cyclodextrin
	Acrylates/vinyl isodecanoate crosspolymer	Decaglycerol monodioleate

	DEA-ceteareth-2-phosphate	Glyceryl ricinoleate SE
	DEA-cetyl phosphate	Glyceryl stearate, G. stearate citrate
	DEA-cyclocarboxypropyleate	Glyceryl stearate lactate
	DEA-olet-3-phosphate	Glyceryl stearate SE
5	DEA-olet-5-phosphate	Glyceryl undecylenate
	DEA olet-10 phosphate	Glycol distearate, G. oleate
	DEA-olet-20-phosphate	Glycol palmitate, G. stearate
	Diceteareth-10 phosphoric acid	Glycol stearate SE
	Diethanolamine	Glycolamide stearate
10	Diethylaminoethyl stearate	Glycosphingolipids
	Diglyceryl stearate malate	Hydrogenated coco-glycerides
	Dihydrocholeth-15 -20 -30	Hydrogenated cottonseed glyceride
	Dihydrogenated tallow phthalic acid amide	Hydrogenated lanolin
	Dilauryl acetyl dimonium chloride	Hydrogenated lecithin
15	Dilinoleamidopropyl dimethylamine dimethicone copolyol phosphate	Hydrogenated palm oil
	Dilinoleic acid	Hydrogenated soy glyceride
	Dimethicone copolyol almondate	Hydrogenated tallow glycerides
	Dimethicone copolyol isostearate	Hydrogenated tallow glycerides citrate
20	Dimethicone copolyol laurate	Hydroxycetyl phosphate
	Dimethicone copolyol methyl ether	Hydroxylated lanolin
	Cimethicone copolyol olivate	Hydroxylated lecithin
	Dimethicone copolyol phthalate	Hydroxyoctacosanyl hydroxystearate
	Dipalmitoylethyl hydroxyethylmonium methosulfate	Hydroxypropyl-bis-
25	Dipropylene glycol	isostearylamidopropyldimonium chloride
	Disodium hydrogenated cottonseed glyceride sulfosuccinate	Isoceteareth-8 stearate
	Disodium ricinoleamido MEA-sulfosuccinate	Isoceteth-10 stearate
30	Disodium staryl sulfosuccinate	Isoceteth-20
	Disodium sulfosuccinamide	Isocetyl alcohol
	Distearyl phthalic acid amide	Isolaureth-6
	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride	Isostearamidopropyl dimethylamine gluconate
35	Dodecylphenol-ethylene oxide condensate	Isostearamidopropyl dimethylamine glycolate
	Egg (Ovum) yolk extract	Isostearamidopropyl lauryacetodimonium chloride
	Emulsifying wax NF	Isostearath-2 -3 -10 -12 -20 -22 -50
	Ethoxylated fatty alcohol	Isostearth-2-octanoate
	N-Ethylether-bis-1,4-(N-isostearylaminopropyl-	Isostearth-10 stearate
40	N,N-dimethyl ammonium chlo	Isostearic acid
	Ethyl hexanediol	isostearyl diglyceryl succinate
	Euglena gracilis polysaccharide	Isostearylamidopropyl dihydroxypropyl
	Glycereth-26 phosphate	dimonium chloride
	Glyceryl caprylate, G. caprylate/caprate	Karaya (Stericilia urens) gum
45	Glyceryl citrate/lactate/linoleate/oleate	Laneth-5 -10 -15 -16 -20 -40
	Glyceryl cocoate, G. dilaurate	Laneth-10 acetate
	Glyceryl dilaurate, G. dioleate	Lanolin
	Glyceryl distearate, G. hydroxystearate	Lanolin alcohol
	Glyceryl isostearate, G. lanolate	Lanolin, ultra anhydrous
50	Glyceryl laurate, G. linoleate	Lanolin wax
	Glyceryl mono-di-tri-caprylate	Lauramide DEA, L. MEA
	Glyceryl myristate, G. oleate	Lauramidopropyl dimethylamine
	Glyceryl palmitate, G. ricinoleate	Lauramidopropyl PG-dimonium chloride
		Laureth-1 -2 -3 -4 -5
		Laureth-2-octanoate
		Laureth-3 phosphate

	Laureth-4 carboxylic acid	PEG-3 cocamide
	Laureth-5 carboxylic acid	PEG-3 C12-C18 alcohols
	Lauréth-6 -7 -9 -11 -12	PEG-3 glyceryl isostearate
	Laureth-11 carboxylic acid	PEG-3 glyceryl triisostearate
5	Laureth-16 -20 -23 -25 -30	PEG-3 glyceryl tristearate
	Lauryl PCA	PEG-3 lanolate, P. sorbitan oleate
	Laurylmethicone copolyol	PEG-3 stearate
	Lecithin	PEG-4 dioleate, P. diisostearate
10	Linoleamidopropyl PG-dimonium chloride phosphate	PEG-4 dilaurate, P. distearate
	Lithium stearate	PEG-4 glyceryl distearate
	Magnesium sulfate hepta-hydrate	PEG-4 laurate, P. oleate
	Maleated soybean oil	PEG-4 stearate
15	Methoxy PEG-17/dodecyl glycol copolymer	PEG-4 stearyl stearate
	Methyl gluceth-20 distearate	PEG-4 tallate
	methyl glucose dioleate, M.g. sesquisostearate	PEG-5 castor oil, P. cocamine
	Methyl glucose sesquistearate	PEG-5 C12-C18 alcohols
	MEA-laureth sulfate	PEG-5 glyceryl isostearate
20	Myreth-3 -4 -7	PEG-5 glyceryl sesquioleate
	Myreth-3 myristate	PEG-5 glyceryl stearate
	Myristamidopropyl dimethylamine	PEG-5 glyceryl triisostearate
	Nonoxynol-1 -2 -4 -5 -6 -7	PEG-5 lanolate, P. oleamine
	Nonoxynol-8 -9 -10 -11 -12 -13	PEG-5 soy sterol, P. soyamine
25	Nonoxynol-14 -15 -18 -20 -30 -40 -50	PEG-5 stearamine, P. stearate
	Nonyl nonoxynol-5 -10	PEG-5 tallow amine
	Oat (<i>Avena sativa</i>) flour	PEG-6 capric/caprylic glycerides
	Octoxynol-1 -3 -5 -8 -10	PEG-6 cocamide
	Octoxynol 16, 30, 40	PEG-6 C12-14 ether
30	2-Octyl dodecyl alcohol	PEG-6 dilaurate, P. dioleate
	Octyldodecanol	PEG-6 distearate, P. isostearate
	Octyldodeceth-20 -25	PEG-6 lauramide, P. laurate
	Oleamide DEA	PEG-6 oleate, P. palmitate
	Oleamido propyl dimethylamine	PEG-6 sorbitan beeswax
35	Oleamine oxide	PEG-6 sorbitan laurate
	Oleic acid	PEG-6 sorbitan oleate
	Oleth-2 -3 -4 -5 -6 -7 -8 -9	PEG-6 sorbitan stearate
	Oleth-10 -12 -15 -20 -23	PEG-6 stearate
	Oleth-25 -30 -40 -50	PEG-6-32
	Oleth 13	PEG-6-32 stearate
40	Oleth-2 phosphate	PEG-7 glyceryl cocoate
	Oleth-3 phosphate	PEG-7 hydrogenated castor oil
	Oleth-5 phosphate	PEG-7 oleate
	Oleth-10 phosphate	PEG-7.5 tallowamine
	Oleth-20 phosphate	PEG-8
45	Palm acid	PEG-8 beeswax, P. castor oil
	Palmitamidopropyl dimethylamine	PEG-8 C12-14 ether
	Palmitic acid	PEG-8 dilaurate, P. dioleate
	PEG-2 cocamine, P. distearate	PEG-8 distearate
	PEG-2 hydrogenated tallow amine	PEG-8 glycetyl laurate
50	PEG-2 laurate, P. laurate SE	PEG-8 laurate, P. oleate
	PEG-2 oleamine, P. oleate	PEG-8, P. tallate
	PEG-2 soyamine, P. stearamine	PEG-9 castor oil
	PEG-2 stearate, P. stearate SE	PEG-9 diisostearate
		PEG-9 dioleate, P. distearate

	PEG-9 laurate, P. oleate	PEG-23 oleate, P. stearate
	PEG-9 stearate	PEG-24 hydrogenated lanolin
	PEG-10 castor oil, P. cocamine	PEG-25 castor oil
	PEG-10 coconut oil esters	PEG-25 phytosterol
5	PEG-10 C12-18 alcohols	PEG-25 propylene glycol stearate
	PEG-10 dioleate	PEG-25 soy stearol, P. stearate
	PEG-10 glyceryl isostearate	PEG-29 castor oil
	PEG-10 hydrogenated castor oil	PEG-30 castor oil
	PEG-10 hydrogenated castor oil triisostearate	PEG-30 dipolyhydroxystearate
10	PEG-10 lanolate	PEG-30 glyceryl cocoate
	PEG-10 polyglyceryl-2 laurate	PEG-30 glyceryl isostearate
	PEG-10 sorbitan laurate	PEG-30 glyceryl laurate
	PEG-10 soy sterol, P. stearamine	PEG-30 glyceryl oleate
	PEG-10 stearate	PEG-30 glyceryl stearate
15	PEG-11 babassu glycerides	PEG-30 hydrogenated castor oil
	PEG-11 castor oil	PEG-30 lanolin
	PEG-12 dilaurate, P. dioleate	PEG-30 sorbitan tetraoleate
	PEG-12 distearate	PEG-32 dilaurate, P. dioleate
	PEG-12 glyceryl dioleate	PEG-32 distearate, P. laurate
20	PEG-12 laurate, P. oleate	PEG-32 oleate, P. stearate
	PEG-12 stearate, P. tallate	PEG-33 castor oil
	PEG-14 avocado glycerides	PEG-35 castor oil, P. stearate
	PEG-15 castor oil	PEG-40 castor oil
	PEG-15 cocamine	PEG-40 glyceryl isostearate
25	PEG-15 glyceryl isostearate	PEG-40 glyceryl laurate
	PEG-15 glyceryl laurate	PEG-40 glyceryl triisostearate
	PEG-15 glyceryl ricinoleate	PEG-40 hydrogenated castor oil
	PEG-15 oleamine, P. oleate	PEG-40 hydrogenated castor oil PCA isostearate
	PEG-15, P. stearamine	PEG-40 sorbitan diisostearate
30	PEG-15 tallow amine	PEG-40 sorbitan lanolate
	PEG-15 tallow polyamine	PEG-40 sorbitan tetraoleate
	PEG-16	PEG-40 stearate
	PEG-16 hydrogenated castor oil	PEG-40/dodecyl glycol copolymer
	PEG-16 soy sterol	PEG-42 babassu glycerides
35	PEG-18 stearate	PEG-44 sorbitan laurate
	PEG-20 almond glycerides	PEG-45 palm kernel glycerides
	PEG-20 castor oil, P. dilaurate	PEG-45 safflower glycerides
	PEG-20 dioleate, P. distearate	PEG-50 lanolin, P. stearamine
	PEG-20 glyceryl laurate	PEG-50 stearate
40	PEG-20 glyceryl oleate	PEG-60 almond glycerides
	PEG-20 glyceryl stearate	PEG-60 castor oil
	PEG-20 glyceryl triisostearate	PEG-60 corn glycerides
	PEG-20 glyceryl tristearate	PEG-60 glyceryl triisostearate
	PEG-20 hydrogenated castor oil	PEG-60 hydrogenated castor oil
45	PEG-20 hydrogenated lanolin	PEG-60 hydrogenated castor oil isostearate
	PEG-20 lanolin, P. laurate	PEG-60 hydrogenated castor oil triisostearate
	PEG-20 oleate	PEG-60 shea butter glycerides
	PEG-20 methyl glucose sesquistearate	PEG-60 sorbitan tetraoleate
	PEG-20 sorbitan beeswax	PEG-70 mango glycerides
50	PEG-20 sorbitan isostearate	PEG-75
	PEG-20 sorbitan triisostearate	PEG-75 castor oil, P. dilaurate
	PEG-20 sorbitan trioleate	PEG-75 dioleate, P. distearate
	PEG-20 stearate, P. tallow amine	PEG-75 lanolin, P. laurate

	PEG-75 oleate	Polyglyceryl-10 trioleate
	PEG-75 shea butter glycerides	Polyoxyethylene polyoxypropylene glycol
	PEG-75 shorea butter glycerides	Polyquaternium-5, -31
5	PEG-75 stearate	Polysorbate 20, 21, 40, 60, 61
	PEG-80 sorbitan laurate	Polysorbate 65, 80, 81, 85
	PEG-90 stearate	Potassium alginate, P. cetyl phosphate
	PEG-100 castor oil	Potassium laurate, P. myristate
	PEG-100 hydrogenated castor oil	Potassium tallowate
10	PEG-100 lanolin, P. stearate	PPG-1-PEG-9 lauryl glycol ether
	PEG-120 distearate	PPG-2-ceteareth-9
	PEG-150 dilaurate, P. dioleate	PPG-3 isosteareth-9
	PEG-150 distearate, P. lanolin	PPG-3 PEG-6 oleylether
	PEG-150 laurate, P. oleate	PPG-5-buteth-7
15	PEG-150 stearate	PPG-5-ceteth-20
	PEG-200 castor oil	PPG-5-ceteth-10 phosphate
	PEG-200 glyceryl stearate	PPG-8 oleate
	PEG-200 hydrogenated castor oil	PPG-10 cetyl ether phosphate
	PEG-200 laurate, P. oleate	PPG-12-PEG-50 lanolin
20	PEG-400 laurate	PPG-15 stearyl ether
	Phosphate esters	PPG-24-buteth-27
	Phosphated amine oxides	PPG-25 laureth-25
	Phospholipids	PPG-26-buteth-26
	Poloxamer 101, 105, 122, 123, 124	PPG-26 oleate
	Poloxamer 181, 182, 184, 185, 235, 237	PPG-36 oleate
25	Poloxamer 238, 334, 338, 407	Propylene glycol alginate, P.g. dioleate
	Polyglyceryl-2 oleate	Propylene glycol hydroxystearate
	Polyglyceryl-2 polyhydroxystearate	Propylene glycol laurate, P.g. ricinoleate
	Polyglyceryl-2 sesquiisostearate	Propylene glycol ricinoleate SE
	Polyglyceryl-2 stearate	Propylene glycol stearate
30	Polyglyceryl-2-PEG-4-distearate	Propylene glycol stearate, SE
	Polyglyceryl-2-PEG-4-stearate	Quaternium-33
	Polyblyceryl-3 diisostearate, P. dioleate	Rapeseedamidopropyl ethyldimonium ethosulfate
	Polyglyceryl-3 distearate	Rice (Oryza sativa) bran wax
	Polyglyceryl-3 methylglucose distearate	Ricinoleamide DEA
35	Polyglyceryl-3 oleate, P. polyricinoleate	Ricinoleic acid
	Polyglyceryl-3 stearate	Saponins
	Polyglyceryl-4 oleate, P. stearate	Selenium protein complex
	Polyglyceryl-6 dioleate, P. distearate	Silicone quaternium-5, -6
	Polyglyceryl-6 laurate, P. myristate	Sodium acrylates vinyl isodecanoate
40	Polyglyceryl-6 oleate, P. polyricinoleate	crosspolymer
	Polyglyceryl-6 stearate	Sodium caproyl lactylate
	Polyglyceryl-8 oleate	Sodium carbomer
	Polyglyceryl-10 decaoleate	Sodium cetyl sulfate
	Polyglyceryl-10 diisostearate	Sodium C12-15 pareth-15 sulfonate
45	Polyglyceryl-10 dioleate, P. dipalmitate	Sodium isostearoyl lactylate
	Polyglyceryl-10 distearate, P. isostearate	Sodium laureth-17 carboxylate
	Polyglyceryl-10 laurate, P. linoleate	Sodium lauroyl lactylate
	Polyglyceryl-10 mixed fatty acids	Sodium lauryl sulfate
	Polyglyceryl-10 myristate	Sodium nonoxynol-6 phosphate
50	Polyglyceryl-10 oleate	Sodium octyl sulfate
	Polyglyceryl-10 pentastearate	Sodium oleate
	Polyglyceryl-10 stearate	Sodium oleyl sulfate
	Polyglyceryl-10 tetraoleate	Sodium phosphate

	Sodium stearoyl lactylate	Artemisia apiacea extract
	Sorbeth-20	Brassica rapa-depressa extract
	Sorbitan isostearate, S. laurate	Caraway (Carum carvi) oil
	Sorbitan oleate, S. palmitate	Cardamon (Elettaria cardamomum) oil
5	Sorbitan sesquiisostearate	Clove (Eugenia caryophyllus) oil
	Sorbitan sesquioleate, S. sesquistearate	Eclipta alba extract
	Sorbitan stearate, S. triisostearate	Eucalyptus globulus oil
	Sorbitan trioleate, S. tristearate	Euphorium fortunei extract
	Soyamidopropyl dimethylamine	Euterpe precatoria extract
10	Soyamine	Hierochloe odorata extract
	Stearamide DEA	Kadsura heteliloca extract
	Stearamide DIBA-stearate	Ligustrum lucidum extract
	Stearamidoethyl diethylamine	Lysimachia foenum-graecum extract
	Stearamidopropyl dimethylamine, lactate	Melaleuca bracteata extract
15	Stearamidopropyl PG-dimonium chloride phosphate	Melaleuca hypercifolia extract
	Stearamine	Melaleuca symphyocarp extract
	Stearamine oxide	Melaleuca uncinata extract
	Steareth-2, -4, -6, -7, -10, -11, -13	Melaleuca wilsonii extract
20	Steareth-2 phosphate	Nasturtium sinensis extract
	Steareth-15, -20, -21, -30, -100	Nelumbium speciosum extract
	Stearic acid	Paulownia imperialis extract
	Sucrose cocoate, S. distearate	Rosemary (Rosmarinus officinalis) oil
	Sucrose stearate	Selenium spp. extract
25	Sythetic beeswax	Trichomonas japonica extract
	Tallow glyceride, acetylated hydrogenated	Withania somniferum extract
	Tallowamide DEA	Yuzu oil
	Tallowamidopropyl dimethylamine	Ziziphus jujuba extract
	Talloweth-6	
30	Tetrasodium dicarboxyethyl stearyl sulfosuccinamide	Exfoliant
	TEA-acrylates/acrylonitrogens copolymer	Apricot (Prunus armeniaca) kernel powder
	Tissue extract	Glycolic acid
	Triceteareth-4 phosphate	Jojoba (Buxus chinensis) seed powder
35	Trideceth-3, -5, -6, -7, -8	Lactic acid Papain
	Trideceth-9, -10, -12, -15	PEG 11-Avocado Glycerides
	Tridecyl ethoxylate	Willow (Salix alba) bark extract
	Triethanolamine	
	Trilaureth-4 phosphate	Fiber
40	Triolein	Corn (Zea mays) cob powder
	Trisodium HEDTA	Nylon-66
	Tristearin	Oat (Avena sativa) bran, meal
		Rayon
		Film former
	Enzyme	Acetylated lanolin
45	Fermented vegetable	Acrylates/hydroxyesters acrylates copolymer
	Ganoderma lucidum oil	Acrylate/octylarylamide copolymer
	Lipase	Acrylate copolymer alkylated
	Papain	polyvinylpyrrolidone
	Soy (Glycine soja) protein	Ammonium acrylates/acrylonitrogens copolymer
50	Superoxide dismutase	Betaglucan
		Bladderwrack (Fucus vesiculosus) extract
	Essentail oil	Carboxymethylchitosan
	Aesculus chinensis extract	N,O-Carboxymethylchitosonium

	Chitosan lactate	Souble wheat protein
	Collagen	TEA-acrylates/acrylonitrogens copolymer
	Collagen phthalate	Tosylamide/epoxy resin
5	Colloidal oatmeal	Tricontanyl PVP
	Desamido collagen	Triethonium hydrolyzed collagen ethosulfate
	Diisostearoyl trimethylolpropane siloxy silicate	Wheat peptide
	DMHF	
	Ethyl ester of hydrolyzed silk	
10	Ethylcellulose	Fixative
	Gellan gum	Acrylates copolymer
	Glycerin/diethylene glycol/adipate crosspolymer	Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer
	High beta-glucan barley flour	AMP-acrylates copolymer
	Hydrolyzed collagen	Hydrolyzed zein
15	Hydrolyzed keratin	Methacryloyl ethyl betaine/acrylates copolymer
	Hydrolyzed oat protein	Methyl rosinate
	Hydrolyzed pea protein	Polyquaternium-4, -10, -29
	Hydrolyzed reticulin	PPG-20 methyl glucose ether
	Hydrolyzed RNA	Sodium polystyrene sulfonate
	Hydrolyzed silk	
20	Hydrolyzed soy protein	Flavor (aroma)
	Hydrolyzed wheat protein	Benzaldehyde
	Hydrolyzed wheat protein/dimethicone copolyol phosphate copolymer	Caraway (Carum carvi) oil
	Hydrolyzed wheat protein/PVP copolymer	Cardamon (Elettaria cardamomum) oil
25	Hydroxypropylcellulose	Cinnamon (Cinnamomum casia) oil
	Hydroxypropyltrimonium gelatin	Clove (Eugenia caryophyllus) oil
	Jojoba (Buxus chinensis) oil	Ethyl vanillin
	Lactoglobulin	Eucalyptus globulus oil
30	Myristoyl hydrolyzed collagen	Flavor (aroma)
	Nitrocellulose	Glutamic acid
	Oat (Avena sativa) extract, protein	Glycyrrhetic acid
	Polyethylene, ionomer	Glycyrrhizin, ammoniated
	Polyquaternium-6, -7, -11, -22, -39	Methyl salicylate
	Polyvinyl acetate, P. alcohol	Orange (Citrus aurantium dulcis) oil
35	<u>PVM/MA decadiene crosspolymer</u>	Peppermint (Mentha piperita) oil
	PVP/Dimethiconylacrylate/polycarbamyl/polyglycol ester	Rosemary (Rosmarinus officinalis) oil
	PVP/dimethylaminoethylmethacrylate copolymer	Sodium glycyrrhizinate
40	PVP/dimethylaminoethylmethacrylate/ polycarbamyl/polyglycol ester	Thymol Vanillin
	PVP/eicosene copolymer	Foam booster
	PVP/hexadecene copolymer	Alkyldimethylamine oxide
45	PVP/hydrolyzed wheat protein copolymer	Babassuamidopropyl betaine
	Rice peptide	Babassuamidopropylamine oxide
	Sericin	Caprylyl pyrrolione
	Shea butter (Butyrospermum parkii)	Carrageenan (Chondrus crispus)
	Shellac	Cocamide DEA, C. MIPA
50	Sodium C12-15 pareth-7 sulfonate	Cocamidopropyl betaine
	Sodium hyaluronate	Cocamidopropyl dimethylamine lactate
	Souble collagen	Cocamidopropyl hydroxysultaine
	Souble keratin	Coco-betaine
		Coco/oleamidopropyl betaine
		Cocoyl amido hydroxy sulfo betaine
		Cocoyl monoethanolamide ethoxylate

	DEA-hydrolyzed lecithin	Myristamide DEA, M. MEA
	Dimethyl lauramine	Oleamide MEA
	Disodium cocamido MEA-sulfosuccinate	Palmitamide MEA
	Disodium cocoamphodiacetate	PEG-3 lauramide
5	Disodium lauramido MEA-sulfosuccinate	PEG-4 oleamide
	Disodium laureth sulfosuccinate	Ricinoleamide MEA
	Lauramide MIPA	Sesamide DEA
	Lauramidopropyl betaine	Wheat germamide DEA
	Lauryl betaine	
10	Myristamidopropyl dimethylamine dimethicone copolyol phosphate	Foamer
	Myristamine oxide	Ammonium laureth sulfate
	Octyldodecyl benzoate	Ammonium laureth-5 sulfate
	Oleamide DEA, O. MIPA	Ammonium laureth-12 sulfate
15	Oleyl betain	Ammonium lauryl sulfate, A.I. sulfosuccinate
	Palm kernelamide DEA	Ammonium myreth sulfate
	PEG-3 lauramine oxide	Ammonium nonoxynol 4 sulfate
	PPG-15 stearyl ether benzoate	Capryl caprylylglicoside
	PEG-7000	Cetyl betaine
20	Sodium cocoamphoacetate	Cocamide
	Sodium cocoyl isethionate	Cocamidopropyl dimethylamine
	Sodium laureth sulfate	Cocamidopropyl dimethylamine lactate
	Sodium lauroyl wheat amino acids	DEA-laureth sulfate
	Sodium octoxynol-2 ethane sulfonate	DEA lauryl sulfate
25	Soyamidopropyl betaine	Decyl glucoside
	Tallowamide MEA	Disodium caproamphodiacetate
		Disodium caproamphodipropionate
		Disodium capryloamphodiacetate
	Foam stabilizer	Disodium cocoamphodipropionate
	Babassuamidopropylamine oxide	Disodium lauroamphodiacetate
30	Behenamine oxide	Disodium lauroamphodipropionate
	Caprylyl pyrrolidone	Disodium lauryl sulfosuccinate
	Cetamine oxide	Disodium oleamido MEA-sulfosuccinate
	Cocamide DEA, C. MEA, C. MIPA	Disodium oleamido MIPA-sulfosuccinate
	Cocamidopropyl betaine	Disodium PEG-4 cocoamido MIPA-sulfosuccinate
35	Cocamidopropyl hydroxysultaine	Isostearamidopropylamine oxide
	Cocamidopropyl lauryl ether	Lauryl glucoside
	Cocamidopropylamine oxide	Methyl gluceth-20
	Cocamine oxide	MEA-laureth sulfate
	Dihydroxyethyl C12-15 alkoxypropylamine oxide	Mixed isopropanolamines myristate
40	Dihydroxyethyl cocamine oxide	MIPA-lauryl sulfate
	Dihydroxyethyl tallowamine oxide	PEG-80 sorbitan laurate
	Erucamidopropyl hydroxysultaine	PEG lauryl ether sulfate
	Hydroxypropyl methylcellulose	Potassium cocoate, P. lauryl sulfate
	Isostearamide DEA	Quillaja saponaria extract
45	Lauramide DEA, L. MEA	Sodium caproamphoacetate
	Lauramido propylamine oxide	Sodium capryloamphoacetate
	Lauramine oxide	Sodium capryloamphohydroxypropylsulfonate
	Laureth-10	Sodium cocoamphoacetate
	Lauric-linoleic DEA	Sodium cocoamphopropionate
50	Lauroyl-linoleoyl diethanolamide	Sodium C12-15 pareth-25 sulfate
	Lauroyl-myristoyl diethanolamide	Sodium C12-15 pareth-3 sulfonate
	Lauryl pyrrolidone	Sodium C12-15 pareth-15 sulfonate
	Linoleamide MEA	

	Sodium C14-16 olefin sulfonate	Ziziphus jujuba extract
	Sodium deceth sulfate	
	Sodium laureth-2 sulfate	
	Sodium laureth-3 sulfate	
5	Sodium laureth-7 sulfate	Gellant
	Sodium lauriminodipropionate	Acrylic acid/acrylonitrogen copolymer
	Sodium laurylether sulfosuccinate	Agar
	Sodium lauryl sulfate, S.I. sulfoacetate	Algin
	Sodium lauryl sulfosuccinate	Aluminum distearate, A. tristearate
10	Sodium magnesium laureth sulfate	Ammonium acrylates/acrylonitrogen copolymer
	Sodium myreth sulfate, S. myristyl sulfate	Behenic acid
	Sodium trideceth sulfate	Calcium alginate
	Sodium tridecyl sulfate	Carbomer
	TEA-dodecylbenzenesulfonate	Carboxymethylchitosan
15	TEA-laureth sulfate	N,O-Carboxymethylchitosonium
	TEA-lauroyl collagen amino acids	Carrageenan (<i>Chondrus crispus</i>)
	TEA-lauroyl keratin amino acids	Ceresin
	TEA-lauryl sulfate	Cetearyl candelillate
	TEA-palm kernel sarcosinate	Dibenzylidene sorbitol
20	Wheat germamidopropyl betain	Ethylene/acrylic acid copolymer
	Yucca vera extract	Ethylene/VA copolymer
	Fragrance	Gellan gum
	Chamaecyparis obtusa oil	Hexanediol behenyl beeswax
25	Orange (<i>Citrus aurantium dulcis</i>) oil	Hydrogenated jojoba oil
	Peppermint (<i>Mentha piperita</i>) oil	Hydrogenated jojoba wax
	Phenethyl alcohol	Hydroxystearic acid
	Fragrance solvent	Jojoba wax
30	Benzyl benzoate	Laneth-5, -15
	Diethyl phthalate	Montmorillonite
	Triacetin	Myreth-3-octanoate
	Triethyl citrate	Octacosanyl stearate
35	Fungicide	Oleth-3 phosphate
	Astrocaryum murumuru extract	Oleth-10 phosphate
	Azadirachta indica extract	Poloxamer 105, 123, 124, 185, 235
	Captan	Poloxamer 237, 238, 338, 407
	Diiodomethyltolylsulfone	Polyethylene
40	Ficus racemosa extract	Polyethylene, oxidized
	Hexetidine	Polyquaternium-31
	Ligusticum jeholense extract	Potassium alginate, P. chloride
	Mauritia flexosa extract	Sodium nonoxynol-6 phosphate
	Melaleuca symphyocarp extract	Sodium tallowate
45	Melia australasica extract	Synthetic beeswax
	Melia azadirachta extract	TEA-acrylates/acrylonitrogen copolymer
	Mushroom (<i>Cordyceps sabolifera</i>) extract	Tribehenin
	Mushroom (<i>Coriolus versicolor</i>) extract	
	Sodium undecylenate	Glosser
50	Tea tree (<i>Melaleuca alternifolia</i>) oil	C18-36 acid glycol ester
	Thiabendazole	Diphenyl dimethicone
	Undecylenamide MEA	Methyl gluceth-10
	Zinc undecylenate	Octyldodecyl lactate
		Phenyl methicone, P. trimethicone
		Polyglyceryl-2 dioleate
		Polyisobutene
		Polyisobutene/isoheptapentacontane
		Polyisobutene/isooctahexaconane

	Polymethacrylamidopropyltrimonium chloride	Dihydroxyethyl tallowamine oleate
	PPG-10 methyl glucose ether	Dimethicone
	PPG-36 oleate	Dimethicone copolyol acetate, D.c. almondate
	Tea (Camellia sinensis) oil	Dimethicone copolyol amine
5	Tribehenin	Dimethicone copolyol bishydroxyethylamine
		Dimethicon copolyol isostearate, D.c. laurate
		Dimethicone copolyol olivate
	Hair care	Dimethicone hydroxypropyl trimonium chloride
	Gentiana scabra extract	Dimethyl lauramine dimer dilinoleate
	Maidenhair fern extract	Dioleylamidoethyl hydroxyethylmonium methosulfate
10	Nicotinamide	Dipalmitoylethyl hydroxyethylmonium methosulfate
	Nicotinic acid	Diphenyl dimethicone
	Paeonia lactiflorum extract	Ditallowdimonium chloride
	Watercress (Nasturtium officinale) extract	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride
15	Hair conditioner	Entada phaseoloides extract
	Amino bispropyl dimethicone	Ethyl ester of hydrolyzed animal protein
	Amodimethicone	Gelatin
	AMPD-isostearoyl hydrolyzed collagen	Ginseng hydroxypropyltrimonium chloride butylene glycol
	Aqua Ichthammol	Hematin
20	Babassu (Orbignya oleifera) oil	Honey (Mel)
	Babassuamidopropalkonium chloride	Hydrolyzed collagen
	Behenamidopropyl dimethylamine	Hydrolyzed hair keratin
	Behenamidopropyl hydroxyethyl dimonium chloride	Hydrolyzed vegetable protein
25	Behentrimonium chloride	Hydrolyzed wheat protein/dimethicone copolyol acetyl copolymer
	Biotin	Hydrolyzed wheat protein hydroxypropyl polysiloxane
	Bishydroxyethyl biscetyl malonamide	Hydroxyethyl cetyltrimonium phosphate
	Borageamidopropyl phosphatidyl PG-dimonium chloride	Hydroxypropyl trimonium hydrolyzed collagen
30	Brazil nut (Bertholetia excelsa) oil	Hydroxypropyl trimonium hydrolyzed wheat protein polysiloxane copolymer
	Cetearyl trimonium methosulphate	Hyssop (Hyssopus officinalis) extract
	Cetrimonium bromide, C. chloride	Inga edulis extract
	Cetyl pyridinium chloride	Isostearamidopropylamine oxide
	Chia (Salvia hispanica) oil	Isostearoyl hydrolyzed collagen
35	Chrysanthemum morifolium extract	Keratin amino acids
	Cinchona succirubra extract	Kiwi (Actinidia chinensis) fruit extract
	Cocamidopropyl dimethylamine propionate	Kola (Cola acuminata) extract
	Coccinea indica extract	Laminaria japonica extract
40	Cocodimonium hydroxypropyl hydrolyzed collagen	Laurtrimonium chloride
	Cocodimonium hydroxypropyl hydrolyzed keratin	Lauryl hydroxypropyl trimonium polysiloxane copolymer
	Cocodimonium hydroxypropyl silk amino acids	Lauryldimethylamine isostearate
	Cocodimonium hydroxypropyl hydrolyzed wheat protein	Lauryldimonium hydroxypropyl hydrolyzed collagen
45	Cocodimonium hydroxypropyloxyethyl cellulose	Lauryldimonium hydroxypropyl hydrolyzed wheat protein
	Cocotrimonium chloride	Linoleamidopropyl dimethylamine dimer dilinoleate
	Collagen amino acids	
	Cyclomethicone	
50	L-cysteine HCL	
	Dibehenyldimonium methosulfate	
	Dicetyltrimonium chloride	
	Dicocodimonium chloride	

	Linoleamidopropyldimethylamine	Tallowbenzyldimethylammonium chloride, hydrogenated
	Lysimachia foenum-graecum extract	Tallowtrimonium chloride
	Melaleuca hypericifolia extract	Tea (Camellia sinensis) oil
5	Ocimum sanctum extract	TEA-cocoyl hydrolyzed soy protein
	Olealkonium chloride	Thenoyl methionate
	Oleyl dimethylamidopropyl ethonium ethosulfate	Trimethylsilylamodimethicone
	Palmitamidodecanediol	Wheat amino acids
	Panthenyl ethyl ether	
	Paulownia imperialis extract	
10	Peach (Prunus persica) leaf extract	
	PEG-2 cocomonium chloride	
	PEG-120 jojoba acid/alcohol	
	PG-hydroxycellulose lauryldimonium chloride	
15	PG-hydroxyethylcellulose cocodimonium chloride	
	PG-hydroxyethylcellulose lauryldimonium chloride	
	PG-hydroxyethylcellulose stearyldimonium chloride	
20	Phenyl trimethicone	
	Phospholipids	
	Phytantriol	
	Polyoxyethylene polyoxypropylene glycol	
25	Polypropylene glycol	
	Polyquaternium-4, -6, -7, -10	
	Polyquaternium-22, -28, -39	
	PPG-5-ceteth-10 phosphate	
	Propyltrimonium hydrolyzed collagen	
30	Propyltrimonium hydrolyzed soy protein	
	Quaternium-18, -75, -81, -82	
	Quaternium-79 hydrolyzed keratin	
	Quaternium-79 hydrolyzed silk	
	Sambucus nigra extract, oil	
35	Sesamidopropalkonium chloride	
	Silicone quaternium-1, -8	
	Sodium cocoamphoacetate	
	Sodium cocoyl hydrolyzed collagen	
	Sodium polystyrene sulfonate	
40	N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	
	Stearypodium chloride	
	Stearalkonium chloride	
	Stearamidopropyl dimethylamine	
45	Steardimonium hydroxypropyl hydrolyzed wheat protein	
	Steartrimonium chloride	
	Steartrimonium hydroxyethyl hydrolyzed collagen	
	N-Staryl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	
50	Stenocalyx micalii extract	
	Sulfur	

	<u>Hair set resin polymer</u>	<u>Humectant</u>
	Acrylates/acrylamide copolymer	Acetamide MEA
	Acrylates/PVP copolymer	Acetyl monoethanolamine
	Acrylates/hydroxyesters acrylates copolymer	6-(N-Acetyl amino)-4-oxyhexyltrimonium chloride
5	Acrylates/octylarylamide copolymer	Adenosine phosphate
	AMP-acrylates copolymer	Ammonium lactate
	Butylester of PVM-MA copolymer	Atelocollagen
	Carboxylated vinylacetate terpolymer	Calcium pantothenate
	Diglycol/CHDM/isophthalates/SIP copolymer	Calcium stearoyl lactylate
10	Eclipta alba extract	Carboxymethyl chitin
	Ethyl ester of PVM/MA copolymer	Carboxymethyl chitosan succinamide
	Hydroxypropyl chitosan	Chitosan PCA
	Isopropyl ester of PVM/MA copolymer	Cholesteryl hydroxystearate
	Octylacrylamide/acrylates/butylaminoethyl 15 methacrylate copolymer	Collagen amino-polysiloxane hydrolyzate
	Polymethacrylamidopropyltrimonium chloride	Colloidal oatmeal
	Polypropylene glycol oligosuccinate	Copper PCA methylsilanol
	PVP	Dimethicone copolyol laurate
20	PVP/dimethylaminoethylmethacrylate copolymer	Dipotassium glycyrrhizinate
	PVP/Polycarbamyl polyglycol ester	Ethyl ester of hydrolyzed silk
	PVP/VA copolymer	Fatty quaternary amine chloride complex
	PVP/VA vinyl propionate copolymer	Glucos glutamate
	Sodium polyacrylate	Glycereth-4,5-lactate
25	VA/butyl maleate/isobornyl acrylate copolymer	Glycereth-7, -12, -26
	VA/crotonates/vinyl neodecanoate copolymer	Glycerin
	VA/crotonates/vinyl propionate copolymer	Honey extract
	VA/crotonates copolymer	Hydrogenated passion fruit oil
	Vinyl caprolactam/PVP/ 30 dimethylaminoethylmethacrylate copolymer	Hydrolyzed casein
	<u>Hair sheen</u>	Hydrolyzed fibronectin
	Maidenhair fern extract	Hydrolyzed glycosaminoglycans
	Tetrabutoxypropyl methicone	Hydrolyzed oat protein
35	<u>Hair waving</u>	Hydrolyzed silk
	Ammonium thioglycolate, A. thiolactate	Hydrolyzed soy protein
	Argania spinosa oil	Hydroxypropyl chitosan
	L-cysteine HCL	Hydroxypropyltrimonium hydrolyzed casein
	Cystine	Hydroxypropyltrimonium hydrolyzed silk
40	Diammonium dithiodiglycolate	Hydroxypropyltrimonium hydrolyzed soy protein
	Dilauryl thiodipropionate	Hydroxypropyltrimonium hydrolyzed wheat protein
	Ethanolamine sulfite, E. thioglycolate	Keratin amino acids
	Ethanolamine thiolactate	Lactamide DGA, MEA
	Glyceryl thioglycolate	Lactamidopropyl trimonium chloride
45	Hydroxymethyl dioxoazabicyclooctane	Lactic acid
	Jojoba esters	Lactose
	Monoethanolamine thiolactate	Lauroyl lysine
	Shea butter, ethoxylated	Maltitol
	Sodium thioglycolate	Mannitol
50	Thioglycerin	Methyl gluceth-10, -20
	Thioglycolic acid	Natto gum
	Thiolactic acid	Oat (Avena sativa) extract, protein
		Panthenol
		Panthenyl ethyl ether
		PCA

	PEG-4	Methyl myristate, M. palmitate
	Polyamino sugar condensate	Oleic acid
	Potassium lactate	Ricinoleic acid
	Propylene glycol	Tall oil acid
5	Propyltrimonium hydrolyzed collagen	Tallow acid
	propyltrimonium hydrolyzed soy protein	
	Propyltrimonium hydrolyzed wheat protein	
	Quaternium-22	
	Rice (<i>Oryza sativa</i>) germ oil	Lathering agent
10	Sea Salts (Maris sal)	Ammonium cocoyl sarcosinate
	Shea butter (<i>Butyrospermum parkii</i>)	Ammonium C12-15 alkyl sulfate
	Silk powder	Ammonium lauroyl sarcosinate
	Sodium behenoyl lactylate	Cocamide MEA ethoxylate
	Sodium caproyl lactylate	Cocamidopropyl dimethylaminohydroxypropyl
15	Sodium cocoyl lactylate	hydrolyzed collagen
	Sodium hyaluronate	Lauroyl sarcosine
	Sodium isostearoyl lactylate	Myristoyl sarcosine
	Sodium lactate, S. lauroyl lactylate, S. PCA	Sodium cocoyl sarcosinate
20	Sodium polyglutamate	Sodium lauroyl sarcosinate
	Sodium stearoyl lactylate	Sodium methyl cocoyl taurate
	Sorbitan laurate	Sodium myristoyl sarcosinate
	Sorbitan sesquiosstearate	TEA-cocoyl sarcosinate
	Sorbitol	TEA-lauroyl sarcosinate
	Sphingolipids	
25	TEA-PCA	Lubricant
	Urea	Aluminum salt octenyl succinate
	Hydrotrope	Amodimethicone
	Ammonium cumenesulfonate	Boron nitride
30	Ammonium xylenesulfonate	Calcium aluminum borosilicate
	Cetamine oxide	Calcium stearate
	Cocamidopropylamine oxide	Caprylic/capric triglyceride
	Lauramine oxide	Coceth-7 carboxylic acid
	Potassium toluenesulfonate	Coconut (<i>Cocos nucifera</i>) oil
35	PPG-2-isodeceth-4, -6, -9, -12	Cyclomethicone
	Sodium cumene sulfonate	Diisodecyl adipate
	Sodium laureth-13-carboxylate	Diisostearyl fumarate
	Sodium toluene sulfonate	Dimethicone copolyol
	Sodium xylene sulfonate	Glyceryl isostearate, G. oleate
40	Trideceth-19-carboxylic acid	Glyceryl polymethacrylate
		Gold of Pleasure oil
	Intermediate	Hyaluronic acid
	Caprylic acid	Hydrogenated coconut oil
	Deceth-3	Hydrogenated cottonseed oil
45	Diethyl succinate	Hydrogenated palm oil
	Dimethylaminopropylamine	Hydrogenated soybean/cottonseed oil
	DM hydantoin	Hydrogenated soybean oil
	Dodecylbenzene sulfonic acid	Hydrogenated vegetable oil
	Ethylene dichloride	Hydrolyzed oat flour
50	4-Fluoro 3-nitro aniline	Hydroxypropyl guar
	Lauramine	Isodecyl stearate
	Methyl benzoate, M. cocoate	Isopropyl lanolate
	Methyl isostearate, M. laurate	Isostearyl diglyceryl succinate
		Jojoba esters
		Lanolin oil
		Laureth-3 phosphate
		Magnesium myristate, M. stearate

	Mango (<i>Mangifera indica</i>) oil	Triolein
	Mineral oil (<i>Paraffinum liquidum</i>)	Trisodium HEDTA
	Mink'oil	Triundecanoin
	Monostearyl citrate	Zinc laurate, Z. stearate
5	Neatsfoot oil	
	Oleostearine	
	Partially hydrogenated soybean oil	<u>Miscellaneous</u>
	PEG-2 stearate	<i>Adhesion promoter</i> — Glycerin/diethylene glycol/adipate crosspolymer
	PEG-4 dilaurate	<i>Analgesic</i> — Glycol salicylate
10	PEG-5M	<i>Anesthetic</i> — Benzocaine
	PEG-9M	<i>Anti-elastic</i> — Hydrolyzed <i>Ulva lactuca</i> extract
	PEG-23M	<i>Anti-itching</i> — Sodium shale oil sulfonate
	PEG-27 lanolin	<i>Antiacid</i> — Magnesium hydroxide, Magnesium silicate, Simethicone
	PEG-30 lanolin	<i>Antifoam</i> — Dimethicone silylate, Simethicone
15	PEG-40 lanolin, P. stearate	<i>Antilipasic</i> — <i>Laminaria saccharina</i> extract
	PEG-45M	<i>Antipruritic</i> — Coal tar
	PEG-90M	<i>Antispasmodic</i> — Garlic (<i>Allium sativum</i>) extract
	PEG-160M	<i>Antiwrinkle</i> — Chinese hibiscus (<i>Hibiscus rosa-sinensis</i>) extract
20	PEG/PPG-17/6 copolymer	<i>Barrier</i> — Glycerin/diethylene glycol/adipate crosspolymer
	Pentaerythrityl tetrapelargonate	<i>Cell regeneration</i> — Glycoproteins, Hydrolyzed <i>Ulva lactuca</i> extract
	Petrolatum	<i>Co-emulsifier</i> — Cholestrylo/behenyl/octyldodecyl lauroyl glutamate, Isododecane
	Phenethyl dimethicone	<i>Colloid</i> — Gelatin
	Phenyl methicone	<i>Cooling agent</i> — Menthyl PCA, Menthone glycerin acetal
	Polyacrylamidomethylpropane sulfonic acid	<i>Detoxifier</i> — Clover (<i>Trifolium pratense</i>) extract
25	Polybutane	<i>Dye stabilizer</i> — Uric acid
	Polydimethicone copolyol	<i>Filler</i> — Mica
	Polyglycerol ester of mixed vegetable fatty acids	<i>Fragrance stabilizer</i> — 2,2',4,4'-Tetrahydroxybenzophenone
	Polymethylsilsesquioxane	<i>Free radical scavenger</i> — Melanin
	Potassium laurate, P. myristate	<i>IR filter</i> — <i>Corallina officinalis</i>
30	Potassium tallate	<i>Lanolin substitute</i> — PEG-80 jojoba acid/alcohol
	PPG-2 myristyl ether propionate	<i>Lipolytic</i> — <i>Gelidium cartilagineum</i>
	PPG-3 myristyl ether	<i>Oxident</i> — Barium peroxide, Hydrogen peroxide, Urea peroxide
	PPG-9-buteth-12	<i>Oxygen carrier</i> — Perfluorodecalin
	PPG-11 stearyl ether	<i>Peroxide stabilizer</i> — Phenacetin, Sodium stannate
35	PPG-12-buteth-16	<i>Scalp stimulant</i> — Birch (<i>Betula alba</i>) leaf extract
	PPG-12-PEG-50 lanolin	<i>Sebostatic</i> — <i>Laminaria saccharina</i> extract
	PPG-14 butyl ether	<i>Shine enhancer</i> — Hydrolyzed wheat protein hydroxypropyl polysiloxane
	PPG-20 cetyl ether	<i>Skin barrier lipid</i> — Ceramide 3, N(27-Stearoyloxy-heptacosanoyl) phytosphingosine
	PPG-20-buteth-30	<i>Skin clarifier</i> — Oat (<i>Avena sativa</i>) bran extract
40	PPG-24-buteth-27	<i>Skin purifier</i> — Birch (<i>Betula alba</i>) leaf extract
	PPG-28-buteth-35	
	PPG-36 oleate	
	PPG-40 butyl ether	
	Quaternium-79 hydrolyzed keratin	
45	Quaternium-79 hydrolyzed silk	
	Rice (<i>Oryza sativa</i>) starch	
	Shea butter (<i>Butyrospermum parkii</i>) extract	
	Shorea stenoptera butter	
	Silica	
50	Stearamide MEA, S. MEA-stearate	
	Stearoxytrimethylsilane	
	Stearyl dimethicone	
	Triisostearyl citrate	

	<i>Substantivity</i> — Dimethicone copolyol bishydroxyethylamine, Dimethicone hydroxypropyl trimonium chloride, Trimethylsilylamodimethicone	Bactri gasipaes extract Benincasa hispida extract Betaglucan Betaine
5	<i>Sunless tanning</i> — Acetyl tyrosine, Eclipta alba extract in white emulsion <i>Tonic</i> — Kiwi (Actinidia chinensis) fruit extract, Matricaria (Chamomilla recutita) extract, Orange (Citrus aurantium dulcis) peel extract	Borage (Borago officinalis) seed oil Brazil nut (Bertholetta excelsa) extract, oil C10-30 cholesterol/lanosterol esters Calcium pantothenate Calcium protein complex Caprylic/capric triglyceride Caprylic/capric/lauric triglyceride Caprylic/capric/linoleic triglyceride Caprylic/capric/oleic triglycerides Cashew (Anacardium occidentale) nut oil Celastrus paniculata extract Ceramide 33 (liquid soy extract) Chia (Salvia hispanica) oil Chinese hibiscus (Hibiscus rosa-sinensis) extract
10	<i>Viscosity stabilizer</i> — Diisodecyl adipate <i>Spreading agent</i> — Stearyl heptanoate <i>Wound healing</i> — Comfrey (Symphytum officinale) leaf extract	Chitin Chitosan, C. PCA Cholesteric esters Cholesterol Cholesteryl/behenyl/octyldodecyl lauroyl glutamate Cocodimonium hydroxypropyl hydrolyzed collagen
15	<i>Waterproofing agent</i> — PVP/eicosene copolymer, PVP/hexadecene copolymer, Tricontanyl PVP	Cocodimonium hydroxypropyl hydrolyzed silk Cocodimonium hydroxypropyl hydrolyzed wheat protein Cocodimonium hydroxypropyl silk amino acids
	Moisture barrier	Collagen Collagen amino acids, C. phthalate Copper aspartate, C. protein complex Corn (Zea mays) oil Cottonseed (Gossypium) oil Crataegus cuneata extract Cucumber (Cucumis sativus) extract Desamido collagen Dicaprylyl maleate Diisocetyl dodecanedioate Diisostearyl adipate Dimethyl hyaluronate Dimethylsilanol hyaluronate Diocetylidodecyl dimer dilinoleate Diocetylidodecyl dodecanedioate Dipentaerythritol fatty acid ester Dog rose (Rosa canina) hips extract Dog rose (Rosa canina) seed extract Echitea glauca extract Elastin amino acids Emblica officinalis extract Ethyl minkate Eugenia jambolana extract
20	Acrylates/octylarylamide copolymer Betaglucan C16-18 alkyl methicone Cholesterol Glycolipids Isoeicosane	
25	Isohexadecane Lanosterol Octyl pelargonate, O. stearate Polyisobutene Polyisobutene/isoheptapentacontahectane	
30	Polyisobutene/isooctahexacontane Silica silylate Trihydroxypalmitamidohydroxy propyl myristyl ether Trimethylsiloxy silicate	
35	Moisturizer	
40	Acetamidopropyl trimonium chloride Adenosine triphosphate Aesculus chinensis extract Algae (Ascophyllum nodosum) extract Algae extract	
45	Aloe barbadensis, A.b. extract Ammonium lactate Amniotic fluid Apple (Pyrus malus) extract Apricot (Prunus armeniaca) kernel oil Arginine PCA Atelocollagen Artemisia apiacea extract	
50	Astrocyrum murumuru extract Avocado (Persea gratissima) extract, oil Avocado (Persea gratissima) unsaponifiables Babassu (Orbignya oleifera) oil	

	Evening primrose (<i>Oenothera biennis</i>) extract, oil	Lactamide DGA, L. MEA
	Galla sinensis extract	Lactic acid
	Ganoderma lucidum oil	Lactobacillus/whey ferment
5	Ginseng (<i>Panax ginseng</i>) extract	Lactococcus hydrolysate
	Gleditsia sinensis extract	Lactoyl methylsilanol elastinate
	Glycereth-12	Lanolin alcohol
	Glyceryl alginate, G. collagenate	Lauryl PCA
	Glyceryl polymethacrylate	Lecithin
	Glycolic acid	Lesquerella fendleri oil
10	Glycolipids	Liposomes
	Glycosaminoglycans	Lysine PCA
	Glycosphingolipids	Macadamia ternifolia nut oil
	Gnetum amazonicum extract	Magnesium aspartate
	Grape (<i>Vitis vinifera</i>) seed oil	Maltitol
15	Hazel (<i>Corylus avellana</i>) nut oil	Manganese aspartate
	Honey extract	Mango (<i>Mangifera indica</i>) oil
	Hyaluronic acid	Mannan
	Hybrid safflower (<i>Carthamus tinctorius</i>) oil	Marine polyaminosaccharide
	Hydrogenated castor oil	Mauritella armata extract
20	Hydrogenated coconut oil	Maximilliana regia extract
	Hydrogenated cottonseed oil	Meadowfoam (<i>Limnanthes alba</i>) seed oil
	Hydrogenated lecithin	Melaleuca hypericifolia extract
	Hydrogenated palm oil	Methylsilanol elastinate, M. mannuronate
	Hydrogenated polyisobutene	Milk amino acids
25	Hydrogenated soybean oil	Mineral oil (<i>Paraffinum liquidum</i>)
	Hydrogenated soybean/cottonseed oil	Molybdenum aspartate
	Hydrogenated vegetable oil	Mouriri apiranga extract
	Hydrolyzed carbolipoprotein	Natto gum
	Hydrolyzed collagen	Nelumbium speciosum extract
30	Hydrolyzed elastin	Neopentyl glycol dicaprate
	Hydrolyzed fibronectin	Oat (<i>Avena sativa</i>) protein
	Hydrolyzed glycosaminoglycans	Octyl hydroxystearate
	hydrolyzed keratin	Ophiopogon japonicus extract
	Hydrolyzed milk protein	Orange (<i>Citrus aurantium dulcis</i>) peel wax
35	Hydrolyzed oats	Palmetto extract
	Hydrolyzed pea protein	Pantethine
	Hydrolyzed placental protein	Panthenyl ethyl ether
	Hydrolyzed rice protein	Paraffin
	Hydrolyzed transgenic collagen	Partially hydrogenated soybean oil
40	Hydrolyzed serum protein	peanut (<i>Arachis hypogaea</i>) oil
	Hydrolyzed silk	Pecan (<i>Carya illinoensis</i>) oil
	Hydrolyzed sweet almond protein	PEG-4, -6, -8, -12
	Hydrolyzed wheat protein	PEG-70 mango glycerides
	Hydroxyethyl chitosan	PEG-75 shea butter glycerides
45	Inositol	PEG-75 shorea butter glycerides
	Isodecyl salicylate	PEG-100 stearate
	Isostearyl hydrolyzed animal protein	Pentaerythrityl
	Jojoba (<i>Buxus chinensis</i>) oil	isostearate/caprate/caprylate/adipate
	Jojoba esters	Pentaerythrityl stearate/caprate/caprylate/adipate
50	Keratin amino acids	Pentylene glycol
	Kiwi (<i>Actinidia chinensis</i>) fruit extract	Perfluoropolymethylisopropyl ether
	Kola (<i>Cola acuminata</i>) extract	Petrolatum
	Kukui (<i>Aleurites moluccana</i>) nut oil	Petroleum wax

	Pfaffia spp. extract	Wheat (Triticum vulgare) germ extract, germ oil
	Pistachio (Pistacia vera) nut oil	Yarrow (Achillea millefolium) extract
	Placental protein	Wheat amino acids
	Plankton extract	Yeast (Saccharomyces cerevisiae) extract (Faex)
5	Polyamino sugar condensate	Yogurt filtrate
	Polybutene	Zinc aspartate
	Polyunsaturated fatty acids	Ziziphus jujuba extract
	Potassium DNA, P. lactate, P. PCA	
	PPG-8/SMDI copolymer	
10	PPG-20 methyl glucose ether distearate	Naturilizer
	Propylene glycol dicaprylate/dicaprate	2-Aminobutanol
	Propylene glycol dioctanoate	Aminoethyl propanediol
	Pumpkin (Cucurbita pepo) seed oil	Aminomethyl propanediol
	Quinoa (Chenopodium quinoa) extract	Aminomethyl propanol
15	Rapeseed (Brassica campestris) oil	Ammonium carbonate
	Rehmannia chinensis extract	Calcium hydroxide
	Rice (Oryza sativa) bran oil	Diethanolamine
	Rose Water	Ethanolamine
	Royal jelly extract	Glucamine
20	Saccharide isomerate	Isopropanolamine
	Saccharomyces lysate extract	Isopropylamine
	Saccharomyces/soy protein ferment	2-Methyl-4-hydroxypyrrolidine
	Safflower (Carthamus tinctorius) oil	Morpholine
	Selenium aspartate, S. protein complex	Sodium bromate
25	Sericin	Succinic acid
	Serum albumin	Tetrahydroxypropyl ethylenediamine
	Sesame (Sesamum indicum) oil	Triethanolamine
	Shea butter (Butyrospermum parkii)	Tromethamine
	Shea butter (Butyrospermum parkii) extract	
30	Shorea stenoptera butter	Oil absorbent
	Silk amino acids	Hydrated silica
	Sodium carboxymethyl beta-glucan	Polymethyl methacrylate
	Sodium chondroitin sulfate	Silicon dioxide hydrate
	Sodium DNA, S. hyaluronate	Walnut (Juglans regia) shell powder
35	Sodium lactate, S. PCA	
	Souble collagen	Ointment base
	Souble transgenic elastin	Borage (Borago officinalis) seed oil
	Soybean (Glycine soja) oil	Caprylic/capric/stearic triglyceride
	Spherical cellulose acetate	Glyceryl cocoate
40	Spondias amara extract	Hydrogenated coco-glycerides
	Squalene	Lanolin
	Stomach extract	Mink oil
	Sunflower (Helianthus annuus) seed oil	Oleostearine
	Superoxide dismutase	Tallow
45	Tissue extract	
	Tocopheryl acetate, T. linoleate	Opacifier
	Tomato (Solanum lycopersicum) extract	Barium sulfate
	Tormentil (Potentilla erecta) extract	C12-16 alcohols
	Trehalose	Cetearyl octanoate
50	Triundecanoin	Cetyl myristate, C. palmitate
	Vegetable oil	Cocamidopropyl lauryl ether
	Walnut (Juglans regia) oil	Glyceryl distearate
	Watercress (Nasturtium officinale) extract	Glyceryl hydroxystearate
		Glyceryl myristate, G. stearate

	Glycol distearate, G. stearate	Rice (<i>Oryza sativa</i>) bran wax
	Magnesium myristate	Serum protein
	PEG-2 distearate, P. stearate	Tosylamide/epoxy resin
5	PEG-2 stearate SE	Triacetin
	PEG-3 distearate	Tributyl citrate
	Propylene glycol myristate, P.g. stearate	Triethyl citrate
	Stearamide	Trimethyl pentanediol dibenzoate
	Stearamide DIBA-stearate	Trimethylethanetribenzoate
	Stearamide MEA	
10	Stearamide MEA-stearate	Polish
	Stearamidopropyl dimethylamine lactate	Acrylates copolymer
	Stearyl stearate	Aluminum silicate
	Styrene homopolymer	Neatsfoot oil
	Styrene/acrylates copolymer	Tallow
15	Styrene/PVP copolymer	Polymer
	Triisostearin PEG-6 esters	Acrylamide sodium acrylate copolymer
	Plasticizer	Acrylates-VA crosspolymer
20	Acetyl tributyl citrate	Acrylates/acrylamide copolymer
	Acetyl triethyl citrate	Acrylates/hydroxyesters acrylates copolymer
	AMP-isostearoyl hydrolyzed wheat protein	Acrylates/octylacrylamide copolymer
	AMPD-isostearoyl hydrolyzed collagen	Acrylates/stearath-20 methacrylate copolymer
	Cyclohexane dimethanol dibenzoate	Adipic acid-epoxypropyl diethylenetriamine copolymer
	Dibutyl phthalate	Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer
25	Diethyl phthalate	Ammonium acrylates copolymer
	Diethylene glycol dibenzoate	Ammonium acrylates/acrylonitrogens copolymer
	Diisopropyl sebacate	AMP-acrylates copolymer
	Dimethicone copolyol	AMP-isostearoyl hydrolyzed collagen
	Dimethyl phthalate	Butylester of PVM-MA copolymer
30	Dipropylene glycol dibenzoate	Calcium carrageenan
	Ethyl ester of hydrolyzed keratin	Carboxylated vinylacetate terpolymer
	Glycerol tribenzoate	Ceteareth-2 phosphate
	Glycol	Ceteareth-5 phosphate
	Hydrolyzed serum protein	Ceteareth-10 phosphate
35	Isocetyl salicylate	Ceteareth-29, -34
	Isodecyl benzoate	Coco-glucoside
	Isoeicosane	Cocodimonium hydroxypropyloxyethyl cellulose
	Isopropyl lanolate	C12-13 pareth-4, -9, -23
	Isostearoyl hydrolyzed collagen	DEA-ceteareth-2-phosphate
40	Lauroyl hydrolyzed collagen	DEA-oleth-5-phosphate
	Marine collagen	DEA-oleth-20-phosphate
	Monostearyl citrate	Diglycol/CHDM/isophthalates/SIP copolymer
	Neopentyl glycol dibenzoate	Diisopropyl dimer dilinoleate
	Octyl benzoate, O. laurate	Diisostearoyl trimethylolpropane siloxy silicate
45	PEG-60 shea butter glycerides	Diisostearyl dimer dilinoleate
	Pentaerythrityl tetrabenzoate	Dilinoleic acid
	Polyoxyethylene glycol dibenzoate	Dodecanedioic acid/cetearyl alcohol/glycol copolymer
	Polypropylene glycol dibenzoate	Eclipta alba extract
	PPG-12-PEG-50 lanolin	Ethyl ester of PVM/MA copolymer
50	PPG-20 cetyl ether	Ethylene/acrylic acid copolymer
	PPG-20 lanolin alcohol ether	
	Propylene glycol dibenzoate	
	Propylene glycol myristyl ether acetate	

	Ethylene/VA copolymer	Polyglyceryl-2 polyhydroxystearate
	Glycereth-26 phosphate	Polymethacrylamidopropyltrimonium chloride
	Hyaluronic acid	Polyquaternium-6, -7, -10, -11, -22, -39
	Hydrolyzed RNA	Polysilicone-8
5	Hydrolyzed wheat protein polysiloxane polymer	Potassium alginate
	Hydroxypropyltrimonium hydrolyzed collagen	Potassium lauroyl collagen amino acids
	Hydroxypropyltrimonium hydrolyzed wheat	Potassium lauroyl hydrolyzed soy protein
	protein	Potassium lauroyl wheat amino acids
	Laneth-40	PPG-8/SMDI copolymer
10	Lauryldimonium hydroxypropyl hydrolyzed soy	PPG-12/SMDI copolymer
	protein	PPG-51/SMDI copolymer
	Methacrylol ethyl betaine/acrylates copolymer	PVM/MA decadiene crosspolymer
	Octylacrylamide/acrylates/butylaminoethyl	PVP/dimethylaminoethylmethacrylate copolymer
	methacrylate copolymer	PVP/VAc copolymer
15	Oleth-2 phosphate	Sodium cocoyl hydrolyzed wheat protein
	Oleth-5 phosphate	Steardimonium hydroxypropyl hydrolyzed wheat
	PEG-3 lanolate	protein
	PEG-4 stearate	Steareth-2 phosphate
	PEG-5M	TEA-acrylates/acrylonitrogens copolymer
20	PEG-7 glyceryl cocoate	Tosylamide/epoxy resin
	PEG-8 glyceryl laurate	Tosylamide/formaldehyde resin
	PEG-8/SMDI copolymer	Trideceth-5, -6, -7, -8
	PEG-9 castor oil	VA/butyl maleate/isobornyl acrylate copolymer
	PEG-9M	VA/crotonates/vinyl neodecanoate copolymer
25	PEG-11 babassu glycerides	Vinyl caprolactam/PVP/
	PEG-12 palm kernel glycerides	dimethylaminoethylmethacrylate copolymer
	PEG-12 stearate	Wheat (<i>Triticum vulgare</i>) protein
	PEG-14 avocado glycerides	Xanthan gum
	PEG-15 glyceryl laurate	 Powder
30	PEG-20 corn glycerides	Acrylates copolymer, spherical powder
	PEG-20 evening primrose glycerides	Attapulgite
	PEG-20 glyceryl oleate	Boron nitride
	PEG-23 oleate	Calcium aluminum borosilicate
	PEG-23M	Calcium carbonate
35	PEG-29 castor oil	Cellulose triacetate
	PEG-42 babassu glycerides	Corn (<i>Zea mays</i>) cob powder, starch
	PEG-45 safflower glycerides	Hydrogenated jojoba wax
	PEG-45M	Magnesium carbonate, M. myristate
	PEG-60 evening primrose glycerides	Magnesium stearate
40	PEG-60 hydrogenated castor oil	Mica
	PEG-75 castor oil	Microcrystalline cellulose
	PEG-90M	Nylon-6
	PEG-120 distearate	Nylon powder
	PEG-150 lanolin	Oat (<i>Avena sativa</i>) starch
45	PEG-160M	Polyamide 12
	PG-hydroxycellulose lauryldimonium chloride	Polyethylene
	PG-hydroxyethylcellulose cocodimonium	Polymethyl methacrylate
	chloride	Polymethylsilsesquioxane
50	PG-hydroxyethylcellulose stearyldimonium	PTFE
	chloride	Silica
	Polyethylene, ionomer	Silk powder
	Polyethylene, micronized	Spherical cellulose acetate
	Polyethylene, oxidized	

	Talc	Methyl paraben sodium
	Tapioca dextrin	Methylchloroisothiazolinone
	Zinc laurate	Methyldibromo glutaronitrile
5	Powder, absorbent	Methylisothiazolinone
	Aluminum starch octenylsuccinate	Methylparaben
	Clays (white, yellow, red, green, pink)	Mushroom (<i>Cordyceps sabolifera</i>) extract
	Sorbitol	Myrtrimonium bromide
	Tapioca	Pentasodium pentetate
10	Preservative	Pentetic acid
	Alcohol	Phenethyl alcohol
	Ascorbic acid	Phenol
	Ascorbyl palmitate	Phenyl mercuric acetate
15	Benzalkonium chloride	o-Phenylphenol
	Benzethonium chloride	Polyaminopropyl biguanide
	Benzoic acid	Polymethoxy bicyclic oxazolidine
	Benzyl alcohol	Potassium sorbate
	Benzylparaben	Propylparaben
20	5-Bromo-5 nitro-1,3-dioxane	Quaternium-15
	2-Bromo-2-nitropropane-1,2-diol	Salicylic acid
	Butylparaben	Sodium benzoate, S. bisulfate
	Calcium propionate	Sodium butylparaben, S. dehydroacetate
	Cetrimonium bromide	Sodium erythorbate, S. ethyl paraben
25	Cetyl pyridinium chloride	Sodium hydroxymethylglycinate
	Chloroxylenol	Sodium metabisulfite, S. methylparaben
	Chlorophenesin	Sodium o-phenylphenate
	o-Cymen-5-ol	Sodium propionate, S. propylparaben
	Diazolidinyl urea	Sodium pyrithione, S. salicylate
30	Dichlorobenzyl alcohol	Sodium sulfate
	Dichlorophene	Sorbic acid
	Diiodomethyltolylsulfone	Tetrasodium EDTA
	Dimethyl hydroxymethyl pyrazole	Thimerosal
	Dimethyl oxazolidine	Thymol
35	Disodium EDTA	Tris (hydroxymethyl) nitromethane
	DMDM hydantoin	Trisodium EDTA, T. HEDTA
	EDTA	Usnic acid
	Erythoribc acid	Zinc PCA
	7-Ethylbicyclooxazolidine	Propellant
40	Ethylparaben	Butane
	Fomistopsis officinalis oil	Dimethyl ether
	Formaldehyde	Hydrofluorocarbon 152a
	Glutaral	Isobutane
	Glyceryl laurate	Propane
45	HEDTA	Protein
	Hexamidine diisethionate	Albumen
	Hexetidine	Atelocollagen
	Imidazolidinyl urea	Bletia hyacinthina extract
	Isobutylparaben	Chrysanthemum morifolium extract
50	Isopropyl sorbate	Cocodimonium hydroxypropyl hydrolyzed
	Isopropylparaben	collagen
	MDM hydantoin	Cocodimonium hydroxypropyl hydrolyzed
	Methenammonium chloride	keratin

	Cocodimonium hydroxypropyl hydrolyzed soy protein	Sodium stearoyl hydrolyzed collagen
	Cocodimonium hydroxypropyl hydrolyzed wheat protein	Sodium undecylenoyl hydrolyzed collagen
5	Cocoyl hydrolyzed collagen	Sodium/TEA-lauroyl hydrolyzed collagen
	Collagen, C. phthalate	Sodium/TEA-lauroyl hydrolyzed keratin
	Collagen amino-polysiloxane hydrolyzate	Soluble collagen
	Deoxyribonucleic acid	Soluble keratin
	Desamido collagen	Soluble wheat protein
10	Elastin amino acids	Soy (Glycine soja) protein
	Embryo extract	Steardimonium hydroxypropyl hydrolyzed collagen
	Ethyl ester of hydrolyzed animal protein	Steartrimonium hydroxyethyl hydrolyzed collagen
	Fibronectin	TEA-cocoyl hydrolyzed collagen
	Gelatin	TEA-cocoyl hydrolyzed soy protein
15	Human placental protein	TEA-lauroyl collagen amino acids
	Hydrolyzed collagen	TEA-lauroyl keratin amino acids
	Hydrolyzed extensin	Trachea hydrolysate
	Hydrolyzed fish protein	Triethonium hydrolyzed collagen ethosulfate
	Hydrolyzed hemoglobin	Wheat (Triticum vulgare) germ extract, protein
20	Hydrolyzed keratin	Wheat amino acids
	Hydrolyzed lactalbumin	Wheat peptide
	Hydrolyzed milk protein	Wheat protein
	Hydrolyzed soy flour	
	Hydrolyzed sweet almond protein	<u>Protein, hydrolyzed</u>
25	Hydroxypropyltrimonium hydrolyzed collagen	Ethyl ester of hydrolyzed silk
	Iosstearyl hydrolyzed collagen	Hydrolyzed casein
	Keratin	Hydrolyzed elastin
	Lactoferrin	Hydrolyzed mushroom (Tricholoma matsutake) extract
	Lactoglobulin	Hydrolyzed pea protein
30	Lauryldimonium hydroxypropyl hydrolyzed collagen	Hydrolyzed rice protein
	Marine collagen	Hydrolyzed serum protein
	Methylsilanol elastinate	Hydrolyzed silk
	Potassium abietoyl hydrolyzed collagen	Hydrolyzed soy protein
35	Potassium cocoyl hydrolyzed collagen	Hydrolyzed vegetable protein
	Potassium myristoyl hydrolyzed collagen	Hydrolyzed wheat protein
	Potassium oleoyl hydrolyzed collagen	Hydroxypropyltrimonium hydrolyzed casein
	Potassium undecylenoyl hydrolyzed collagen	Hydroxypropyltrimonium hydrolyzed silk
	Propyltrimonium hydrolyzed collagen	Hydroxypropyltrimonium hydrolyzed soy protein
40	Propyltrimonium hydrolyzed soy protein	Hydroxypropyltrimonium hydrolyzed wheat protein
	Propyltrimonium hydrolyzed wheat protein	
	Protein hydrolysates	
	Quaternium-79 hydrolyzed keratin	<u>Reducing agent</u>
	Quaternium-79 hydrolyzed silk	Dimyristyl thiadipropionate
45	Rice peptide	Hydrolyzed zein, iodized
	RNA	Hydrolyzed zein, sulfurized
	Serum albumin, S. protein	Zinc formaldehyde sulfoxylate
	Silk powder	
	Sodium caseinate	
50	Sodium cocoyl hydrolyzed collagen	<u>Refatting agent</u>
	Sodium cocoyl hydrolyzed soy protein	Caprylic/capric triglyceride PEG-4 esters
	Sodium myristoyl hydrolyzed collagen	Cocamide MIPA
	Sodium oleoyl hydrolyzed collagen	Diisostearyl dimer dilinoleate
		Hydrogenated palm kernel glycerides

	Isostearyl erucate, I. isostearate	Dimethicone copolyolamine
	Lecithin	Dimethiconol fluoroalcohol dilinoleic acid
	Liposomes	Dimethiconol hydroxystearate, D. stearate
5	Magnesium sulfate hepta-hydrate	Diphenyl dimethicone
	Octyldodecyl behenate, O. myristate	Disodium-PG-propyldimethicone thiosulfate
	bis-Octyldodecyl stearoyl dimer dilinoleate	Isopropyl hydroxybutyramide dimethicone
	Octyldodecyl stearoyl stearate	copolyl
	Octyl hydroxystearate	Methicone
	PEG-3 stearate	Octamethyl cyclotetrasiloxane
10	PEG-4 oleamide	Phenyl methicone, P. trimethicone
	PEG-6 capric/caprylic glycerides	Polyether Trisiloxane
	PEG-7 glyceryl cocoate	Polymethylsilsesquioxane
	PEG-16	Polysilicone-8
	Propylene glycol dipelargonate	Quaternium-80
15	Resin	Silicone quaternium-1, -8
	Acrylates/hydroxyesters acrylates copolymer	Sodium-PG-propyl thiosulfate dimethicone
	Ethylene vinyl acetate	Stearoxymethicone/dimethicone copolymer
	Glyceryl abietate	Trimethylsilylamodimethicone
20	Methacrylol ethyl betaine/acrylates copolymer	Skin calming agent
	4-Methyl benzenesulfonamide	Cornflower (<i>Centaurea cyanus</i>) extract
	Polypropylene	Fennel (<i>Foeniculum vulgare</i>) extract
	Polyquaternium-16, -44	Fenugreek extract
	Sucrose benzoate	Linden (<i>Tilia cordata</i>) extract
25	Sequestrant	Valerian (<i>Valeriana officinalis</i>) extract
	Calcium acetate, C. phosphate, C. sulfate	Skin cleanser
	Encapsulation and entrapment systems	Dog rose (<i>Rosa canina</i>) hips extract
	Pentasodium triphosphate	Papaya (<i>Carica papaya</i>) extract
30	Phosphoric acid	Peach (<i>Prunus persica</i>) extract
	Potassium phosphate, P. sodium tartrate	Rose (<i>Rosa multiflora</i>) extract
	Silicon dioxide hydrate	Willow (<i>Salix alba</i>) extract
	Sodium citrate, S. gluconate	
	Sorbitol	Skin conditioner
35	Tartaric acid	Artemisia apiacea extract
	Tripotassium EDTA	Astrocaryum tucuma extract
	Trisodium NTA	Bactris gasipaes extract
	Silicone	Biotin
40	Amino bispropyl dimethicone	Bishydroxyethyl biscetyl malonamide
	Ammonium dimethicone copolyol sulfate	Bletia hyacinthina extract
	Amodimethicone	Borage (<i>Borago officinalis</i>) seed oil
	Behenoxy dimethicone	Borageamidopropyl phosphatidyl PG-dimonium chloride
	C16-18 alkyl methicone	Carbocysteine
45	Cetyl dimethicone copolyol	Catalpa kaempfera extract
	Cyclomethicone	Coco phosphatidyl PG-dimonium chloride
	Diisodecyl adipate	Cocodimonium hydroxypropyl hydrolyzed keratin
	Diisostearoyl trimethylolpropane siloxy silicate	Collagen amino acids
	Dimethicone	Cyclomethicone
50	Dimethicone copolyol	Dimethicone, D. copolyol acetate
	Dimethicone copolyol almondate	Emblica officinalis extract
	Dimethicone copolyol isostearate	Equisetum arvense extract
	Dimethicone copolyol olivate, D.c. phthalate	

	Ethyl ester of hydrolyzed animal protein	Ascorbic acid polypeptide
	Evening primrose (<i>Oenothera biennis</i>) oil	Bearberry (<i>Arctostaphylos uva-ursi</i>) extract
	Fomes fomentarius extract	Hydroquinone-beta-D-glucopyranoside
	Fomistopsis officinalis oil	Lemon (<i>Citrus medica limonum</i> peel extract)
5	Gelatin	Pearls (<i>Margarita margarita</i>)
	Ginseng hydroxypropyltrimonium chloride	
	butylene glycol	
	Glycolipids	Skin protectant
	Glycosphingolipids	Acetylmethionyl methylsilanol elastinate
10	Gnetum amazonicum extract	Allantoin, A. aluminum hydroxide
	Honey (Mel)	<i>Aloe barbadensis</i> , A.b. extract
	Hydrolyzed carbolipoprotein	Aluminum starch octenylsuccinate
	Hydrolyzed elastin	Anise (<i>Pimpinella anisum</i>) extract
	Hydrolyzed pea protein	<i>Arnica montana</i> extract
15	Hydrolyzed rice protein	<i>Artemisia apiacea</i> extract
	Hydrolyzed serum protein	Ascorbyl methylsilanol pectinate
	Hydrolyzed silk	<i>Astrocaryum tucuma</i> extract
	Hydrolyzed soy protein	<i>Bactris gasipaes</i> extract
	Hydrolyzed vegetable protein	Betaglucan
20	Hydrolyzed wheat protein	Bishydroxyethyl biscetyl malonamide
	Inga edulis extract	<i>Bletia hyacinthina</i> extract
	Kiwi (<i>Actinidia chinensis</i>) fruit extract	C18-70 Isoparaffin
	Laminaria japonica extract	<i>Calendula amurensis</i> extract
	Lecithin	Carboxymethyl chitin
25	Marsilea minuta extract	<i>Carcinia cambogia</i> extract
	Nettle (<i>Urtica dioica</i>) extract	Carrot (<i>Daucus carota</i>) extract
	Palmitamidodecanediol	Carrot (<i>Daucus carota sativa</i>) oil
	Pearls (<i>Margarita margarita</i>)	<i>Catalpa kaempfera</i> extract
30	PEG-42 Ebiriko ceramides extract	<i>Chenopodium album</i> extract
	Phenyl trimethicone	Chitosan
	Phytantriol	<i>Chrysanthemum morifolium</i> extract
	Polygonum multiflorum extract	Collagen
35		Corn poppy (<i>Papaver rhoeas</i>) extract
	Potassium cocoyl hydrolyzed collagen	<i>Crataegus cuneata</i> extract
	Retinyl palmitate polypeptide	<i>Crataegus monogyna</i> extract
	Salvia miltiorrhiza extract	Cypress (<i>Cupressus sempervirens</i>) extract
	Silt	Dimethicone
	Sodium cocoyl hydrolyzed collagen	Dimethiconol fluoroalcohol dilinoleic acid
40	Soluble transgenic elastin	Dimethiconol hydroxystearate, D. stearate
	Steartrimonium hydroxyethyl hydrolyzed	Dimethylsilanol hyaluronate
	collagen	<i>Echitea glauca</i> extract
	Stearyl methicone	Embryo extract
45	Skin healing	<i>Entada phaseoloides</i> extract
	Calendula officinalis extract	<i>Equisetum arvense</i> extract
	Glycoproteins	<i>Euphorotium fortunei</i> extract
	Hydrocotyl (<i>Centella asiatica</i>) extract	<i>Euterpe precatoria</i> extract
	Oat (<i>Avena sativa</i>) extract	Fenugreek extract
50	Sandalwood (<i>Santalum album</i>) extract	fomistopsis officinalis oil, F. pinicola extract
	Spearmint (<i>Mentha viridis</i>) extract	Galla sinensis extract
		Gentian (<i>Gentiana lutea</i>) extract
		Gleditsia sinensis extract
		Glyceryl ricinoleate
		Glycolipids
		<i>Hierochloe odorata</i> extract
	Skin lightening/whitening agent	

	Hyaluronic acid	Xanthozylum bungeanum extract
	Hydrogenated lecithin	Zinc oxide
	Hydrolyzed lupine protein	
	Hydrolyzed milk protein	
5	Hydrolyzed mushroom (Tricholoma matsutake) extract	
	Isodecyl salicylate	
10	Jojoba (Buxus chinensis) oil	
	Lady's Thistle (Silybum marianum) extract	
	Laminaria japonica extract	
	Ligusticum jeholense extract	
	Liposomes	
	Magnolis spp. extract	
15	Mango kernel oil	
	marsilea minuta extract	
	Melaleuca hyperifolia extract	
	Melaleuca uncinata extract	
	Melaleuca wilsonii extract	
20	Methylsilanol tri PEG-8 glyceryl cocoate	
	Oat (Avena sativa) meal	
	Oyster (Ostrea) shell extract	
	Palmitamidodecanediol	
	Pearls (Margarita margarita)	
25	Pentahydrosqualene	
	Perfluorodecalin	
	Perfluoropolymethylisopropyl ether	
	Petrolatum	
	PEG-8/SMDI copolymer	
30	PEG-42 Ebiriko ceramides extract	
	Pfaffia spp. extract	
	Phospholipids	
	Plankton extract	
	Polygonum multiflorum extract	
35	Pongamol	
	PPG-12/SMDI Copolymer	
	PPG-51/SMDI Copolymer	
	Propyltrimonium hydrolyzed collagen	
	Quinoa (Chenopodium quinoa) extract, oil	
40	Salvia miltiorrhiza extract	
	Sambucus nigra extract	
	Shark liver oil	
	Shorea robusta extract	
	Sodium chondroitin sulfate	
45	Soluble transgenic elastin	
	Steartrimonium hydroxyethyl hydrolyzed collagen	
	Sterculia platanifolia extract	
	Superoxide dismutase	
50	Trachea hydrolysate	
	Wheat (Triticum vulgare) germ extract, protein	
	White nettle (Lamium album) extract	
	Withania somniferum extract	
		Skin smoothing agent
		Althea officinalis extract
		Coltsfoot (Tussilago farfara) leaf extract
		Comfrey (Symphytum officinale) leaf extract
		Plantain (Plantago major) extract
		Sericin
		Skin softening
		Clays (white, yellow, red, green, pink)
		Cucumber (Cucumis sativus) extract
		Kelp (Macrocystis pyrifera) extract
		Peach (Prunus persica) extract
		Phenethyl dimethicone
		Skin soothing
		Calendula officinalis extract
		Cherry bark extract
		Cucumber (Cucumis sativus) extract
		Garlic (Allium sativum) extract
		Hyssop (Hyssopus officinalis) extract
		Jasmine (Jasminum officinale) extract
		Kelp (Macrocystis pyrifera) extract
		Mango kernel oil
		Meadowsweet (Spiraea ulmaria) extract
		Quince (Pyrus cydonia) seed extract
		Slippery elm extract
		Valerian (Valeriana officinalis) extract
		Willow (Salix alba) extract
		Witch hazel (Hamamelis virginiana) extract
		Solubilizer
		Acetyl monoethanolamine
		Almond oil PEG-6 esters
		2-Aminobutanol
		Aminoethyl propanediol
		Aminomethyl propanediol, A. propanol
		Apricot kernel oil PEG-6 esters
		Benzalkonium chloride
		Butoxydiglycol
		Butyl glucoside
		Butylene glycol
		Butyloctanol
		Capric-caprylic mono-diglyceride
		Capryl caprylylglucoside
		Caprylic/capric triglyceride
		Caprylic/capric/linoleic triglyceride
		Caprylic/capric/oleic triglycerides
		Caprylyl/capryl glucoside
		Ceteareth-20

	Ceteth-10	PEG-40 hydrogenated castor oil PCA isostearate
	Cetyl PPG-2 isodeceth-7 carboxylate	PEG-40 sorbitan diisostearate
	Cholésterol	PEG-45 palm kernel glycerides
5	Corn oil PEG-6 esters	PEG-48 hydrogenated castor oil
	Decaglycerol monodioleate	PEG-50 castor oil
	Diethanolamine	PEG-50 hydrogenated castor oil
	Dilaureth-10 phosphate	PEG-60 almond glycerides
	Dimethyl octynediol	PEG-60 castor oil
	Dioleth-8 phosphate	PEG-60 corn glycerides
10	Glycereth-7 -26	PEG-60 glyceryl isostearate, P.g. stearate
	Glyceryl caprylate, G. dilaurate	PEG-60 hydrogenated castor oil
	Glyceryl caprylate/caprate	PEG-60 lanolin
	Isoeicosane	PEG-70 mango glycerides
	Isopropanolamine	PEG-75 lanolin
15	Isosteareth-20	PEG-75 shea butter glycerides
	Laneth-5, -15	PEG-75 shorea butter glycerides
	Laureth-23	PEG-80 hydrogenated castor oil
	Methylated cyclodextrin	PEG-80 jojoba acid/alcohol
	Myreth-3	PEG-80 sorbitan laurate
20	Myreth-3-octanoate	PEG-100 castor oil
	Nonoxynol-10, -12, -14, -40, -50	PEG-100 hydrogenated castor oil
	Octoxynol-11, -40	PEG-120 jojoba acid/alcohol
	Oleoamphohydroxypropylsulfonate	PEG-200 trihydroxystearin
	Oleth-3, -5, -10, -15, -20, -25, -50	Poloxamer 407
25	Oleth-20 phosphate	Polyglyceryl-3 oleate
	PEG-4, -6, -8, -12, -16, -20, -32, -40	Polyglyceryl-6 dioleate
	PEG-4 dilaurate	Polyglyceryl-10 deaoleate, P. tetraoleate
	PEG-6 capric/caprylic glycerides	Polysorbate 20, 60, 80
	PEG-6 methyl ether	PPG-2-isodeceth-4, -6, -9, -12
30	PEG-8 distearate	PPG-3 isosteareth-9
	PEG-12 laurate	PPG-3 isoceteth-20 acetate
	PEG-15 castor oil	PPG-5-ceteth-10 phosphate
	PEG-18 stearate	PPG-5-ceteth-20
	PEG-20 glyceryl isostearate, P.g. laurate	PPG-6-decylditetradeceth-12, -20, -30
35	PEG-20 glyceryl oleate, P.g. stearate	PPG-12-PEG-65 lanolin oil
	PEG-20 methyl glucose sesquistearate	PPG-15 stearyl ether
	PEG-20 sorbitan isostearate	PPG-18 butyl ether
	PEG-20 sorbitan triisostearate	PPG-24 butyl ether
	PEG-24 hydrogenated lanolin	PPG-26-buteth-26
40	PEG-25 castor oil	PPG-33 butyl ether
	PEG-25 hydrogenated castor oil	PPG-33-buteth-45
	PEG-30 castor oil	PPG-40-PEG-60 lanolin oil
	PEG-30 glyceryl cocoate	PPG-50 cetyl ether
	PEG-30 glyceryl isostearate	Propylene glycol dicaprylate, dicaprylate/dicaprate
45	PEG-30 glyceryl laurate	Ricinoleamide DEA
	PEG-30 glyceryl oleate	Ricinoleth-40
	PEG-30 glyceryl stearate	Sodium alpha olefin sulfonate
	PEG-33 castor oil	Sodium lauryl sulfate
	PEG-35 castor oil	Sodium methylnaphthalenesulfonate
50	PEG-36 castor oil	Triethanolamine
	PEG-40 castor oil	Trioctanoin
	PEG-40 glyceryl laurate, P.g. stearate	Tromethamine
	PEG-40 hydrogenated castor oil	

	<u>Solvent</u>	
	Acetic acid	Morpholine
	Acetone	Octyl benzoate, O. isononanoate
5	Alcohol, A. denat	Octyl laurate, O. palmitate
	Benzophenone	Octyldodecyl lactate
	Butoxydiglycol	Olive oil PEG-6 esters
	Butyl acetate	Peanut oil PEG-6 esters
	n-Butyl alcohol	Pentane
10	Butyl myristate, B. stearate	Petroleum distillates
	Butylene glycol	PEG-6 methyl ether
	C9-11 isoparaffin	PEG-12
	C10-11 isoparaffin	PEG-20 hydrogenated castor oil
	C10-13 isoparaffin	PEG-33 castor oil
	Caprylic alcohol	PEG-50 glyceryl cocoate
15	Castor (<i>Ricinus communis</i>) oil	Polyglyceryl-2 dioleate
	Cetearyl octanoate	Polyglyceryl-3 diisostearate
	Cetyl stearyl octanoate	Polyoxyethylene glycol dibenzoate
	Chlorobutanol	Polypropylene glycol dibenzoate
	Decyl alcohol	PPG-2 myristyl ether propionate
20	Diethylene glycol	PPG-3
	Diethylene glycol dibenzoate	PPG-20 lanolin alcohol ether
	Diethyl sebacate	Propyl alcohol
	Diisocetyl adipate	Propylene carbonate
	Diisopropyl adipate, D. sebacate	Propylene glycol
25	Dimethyl phthalate	Propylene glycol dibenzoate
	Dipropylene glycol	Propylene glycol methyl ether
	Dipropylene glycol dibenzoate	Propylene glycol myristate
	Ethoxydiglycol	Pyridine
	Ethyl acetate, E. lactate	Sesame (<i>Sesamum indicum</i>) oil
30	Ethyl myristate, E. oleate	Stearyl heptanoate
	2-Ethylhexyl isostearate	Toluene
	Glycerin	Xylene
	Glycofurool	
35	Heptane	
	Hexyl alcohol	<u>SPF booster</u>
	Hexylene glycol	Borojoa sorbilis extract
	Isobutyl stearate	Isohexadecyl salicylate
	Isooctyl salicylate	Styrene/acrylates copolymer
	Isodecyl benzoate, I. isononanoate	Titanium dioxide
40	Isodecyl octanoate, I. oleate	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)
	Isododecane	
	Isoeicosane	<u>Stabilizer</u>
	Isohexadecane	Acrylates-VA crosspolymer
	Isopropyl alcohol, I. myristate	Acrylates/ceteth-20 methacrylates copolymer
45	Isostearyl stearoyl stearate	Acrylates/steareth-20 methacrylate copolymer
	Laureth-2 acetate	Acrylates/vinyl isodecanoate crosspolymer
	Methoxydiglycol	Alkyldimethylamine oxide
	Methoxysopropanol	C10 polycarbamyl polyglycol ester
	Methyl alcohol	Calcium alginate
50	Methyl propanediol	Cocamidopropyl dimethylamine lactate
	Methylene chloride	Cocamine oxide
	MEK	Colloidal silica sols
	MIBK	Cyclodextrin
		Disodium EDTA
		Gellan gum

	Glyceryl diisostearate, G. stearate SE	3-Benzylidene camphor
	Glyceryl mono-di-tri-caprylate	Borojoa sorbilis extract
	Hydrogenated coco-glycerides	C12-15 alkyl benzoate
5	Hydrogenated C12-18 triglycerides	Coffee (Coffea arabica) bean extract
	Hydrogenated tallow glycerides	EthyI salicylate
	Hydrolyzed oat flour	Glyceryl PABA
	Hydroxyoctacosanyl hydroxystearate	Homosalate
	Karaya (Stericulia urens) gum	Hydroquinone-beta-D-glucopyranoside
	Laureth-3	Isoamyl p-methoxycinnamate
10	Maltitol	Isopropylbenzyl salicylate
	Methylated cyclodextrin	Job's tears (Coix lacryma-jobi) extract
	Oleamide	Menthyl anthranilate
	PEG-40 stearate	Octyl dimethyl PABA, O. methoxycinnamate
	PEG-40/dodecyl glycol copolymer	Octyl salicylate, O. triazone
15	Perfluoropolymethylisopropyl ether	Oryzanol
	Polyethylene paste	Pansy (Viola tricolor) extract
	PPG-5 lanolin wax	PEG-25 PABA
	PPG-7-buteth-10	Phenylbenzimidazole sulfonic acid
	PPG-10 cetyl ether phosphate	Rice (Oryza sativa) bran oil
20	Propylene carbonate, P. glycol alginate	TEA-salicylate
	PVM/MA decadiene crosspolymer	Titanium dioxide
	Sodium acrylates/vinyl isodecanoate	
	crosspolymer	Sunscreen UVB
	Sodium carbomer	Benzophenone-5
25	Sorbitan laurate	Eclipta alba extract
	Stearic hydrazide	PEG-25 PABA
	2,2',4,4'-Tetrahydroxybenzophenone	Steareth-100
	Tricaprin	Tridecyl salicylate
	Tricaprylin	
30	Trilaurin	Surffatting agent
	Trimyristin	Linoleamide DEA
	Tripalmitin	PEG-20 almond glycerides
	Tristearin	PEG-60 lanolin
		PEG-75 lanolin
35	Stimulant	Surfactant
	Capsicum frutescens extract	Alkyl dimethyl betaine
	Eleuthero ginseng (Acanthopanax senticosus)	Alkyldimethylamine oxide
	extract	Ammonium cocoyl sarcosinate
	Guarana (Paullinia cupana) extract	Ammonium C12-15 alkyl sulfate
40	Lactococcus hydrolysate	Ammonium dimethicone copolyol sulfate
	Methylsilanol elastinate	Ammonium laureth-5 sulfate
	Methylsilanol hydroxyproline aspartate	Ammonium laureth-12 sulfate
	TEA-hydroiodide	Ammonium laureth sulfate
	Tocopheryl nicotinate	Ammonium lauroyl sarcosinate
45	Urocanic acid	Ammonium lauryl sulfate, A.l. sulfosuccinate
	Yeast (Saccharomyces cerevisiae) extract (Faex)	Ammonium myreth sulfate
	Zedoary (Curcuma zedoraria) oil	Ammonium nonoxynol 4 sulfate
	Zinc DNA	Azelamide MEA
50	Sunscreen	C20-40 alcohol ethoxylate
	Basil (Basilicum santum) oil extract	C30-50 alcohol ethoxylate
	Basil (Ocimum basilicum) extract	C40-60 alcohol ethoxylate
	Benzophenone-3 -4	Calcium dodecylbenzene sulfonate

	Calcium laurate	Disodium oleth-3 sulfosuccinate
	Ceteareth-2 phosphate	Disodium ricinoleamido MEA-sulfosuccinate
	Ceteareth-5 phosphate	Disodium tallamido MEA-sulfosuccinate
	Ceteareth-10 phosphate	Disteareth-2 lauroyl glutamate
5	Cetoleth-25	Disteareth-5 lauroyl glutamate
	Cetyl betaine, C. phosphate	Ethoxylated fatty alcohol
	Cocamide MEA ethoxylate	Ethoxylated glycerol sorbitan saturated fatty acid ester
	Cocamidopropyl betaine, potassium salt	Ethoxylated glycerol sorbitan unsaturated fatty acid ester
	Cocamidopropyl betaine ammonium salt	Glycereth-25 PCA isostearate
10	Cocamidopropyl hydroxy sultaine	Glycereth-26 phosphate
	Cocamidopropyl hydroxy sultaine, ammonium salt	glyceryl hydroxystearate
	Cocamidopropyl hydroxy sultaine, potassium salt	Hydrogenated tallowoyl glutamic acid
	Cocamidopropylamine oxide	Isopropyl hydroxybutyramide dimethicone copolyol
15	Coceth-7 carboxylic acid	Lauramidopropyl betain
	Coco-glucoside	Laureth-1, -2, -3, -4, -7, -12, -16
	Cocoamphodiacetate lauryl-laureth sulfate	Laureth-3 carboxylic acid, L. phosphate
	Cocoamphodiacetate lauryl sulfate	Laureth-5 carboxylic acid
	Cocoamphodiacetate trideceth sulfate	Laureth-11 carboxylic acid
20	Coco phosphatidyl PG-dimonium chloride	Lauroyl sarcosine
	N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Lauryl dimethylamine cyclocarboxypropyleate
	Cocoyl glutamic acid	Laryl hydroxyethyl imidazoline
	Cocoyl hydrolyzed soy protein	Linoleamide DEA
25	Cocoyl hydroxyethyl imidazoline	Magnesium laureth-8 sulfate
	C11-15 pareth-9, -12, -20, -30, -40	Meroxapol 105, 171, 172
	C12-13 pareth sulfate	MEA-lauryl sulfate
	C12-13 pareth-5 carboxylic acid	Mixed isopropanolamines myristate
	C12-15 pareth-12	Myreth-7
30	C14-15 pareth-8 carboxylic acid	Myristoyl sarcosine
	DEA-oleth-5-phosphate	Myristyl alcohol
	DEA-oleth-20-phosphate	Nooxynol-7, -9, -13, -15
	Deceth-3, -6, -8	Nooxynol-10 carboxylic acid
	Decyltetradeceth-25	Octoxynol-10, -12
35	Diceteareth-10 phosphoric acid	Octyldodeceth-10, -16
	Dimethicone copolyol	Oleoyl sarcosine
	Dimethicone copolyol almondate, D.c. isostearate	Oleth-2 phosphate
	Dimethicone copolyol laurate, D.c. olivate	Oleth-5 phosphate
40	Dimethicone copolyol phthalate	Oleyl betaine
	Dimethicone copolyolamine	Oleyl hydroxyethyl imidazoline
	Dimethicone propyl PG-betaine	Palmitamine oxide
	Diocetyldeceth-2 lauroyl glutamate	Palmytil betaine
	Diocetyldeceth-5 lauroyl glutamate	PCA ethyl cocoyl arginate
45	Diocetyldecyl lauroyl glutamate	PEG-7 hydrogenated castor oil
	Disodium capryloamphodiacetate	PEG-8 caprylic/capric glycerides
	Disodium cocoamphodiacetate	PEG-8 laurate
	Disodium hydrogenated tallow glutamate	PEG-8 stearate
	Disodium laneth-5 sulfosuccinate	PEG-15 glyceryl stearate
50	Disodium lauramido MEA-sulfosuccinate	PEG-25 glyceryl isostearate
	Disodium laureth sulfosuccinate	PEG-27 lanolin
	Disodium oleamido MIPA-sulfosuccinate	PEG-30 lanolin
	Disodium oleamido PEG-2 sulfosuccinate	PEG-40 castor oil

	PEG-40 glyceryl stearate	Sodium laureth-11 carboxylate
	PEG-40 jojoba oil, P. lanolin	Sodium laureth-13-carboxylate
	PEG-50 glyceryl isostearate, P.g. stearate	Sodium laureth sulfate
5	PEG-80 jojoba oil, P. sorbitan laurate	Sodium lauroamphoacetate
	PEG-120 jojoba oil	Sodium lauroyl glutamate
	Pentasodium triphosphate	Sodium lauroyl hydrolyzed collagen
	Poloxamer 101, 122	Sodium lauroyl sarcosinate, S.I. taurate
	Polyglyceryl-2 dioleate	Sodium magnesium laureth sulfate
10	Polysiloxane-polyether copolyer	Sodium methyl cocoyl taurate
	Potassium cocoyl glycinate	Sodium methyl oleoyl taurate
	Potassium cocoyl hydrolyzed collagen	Sodium myristoyl glutamate
	Potassium C9-15 phosphate ester	Sodium myristoyl hydrolyzed collagen
	Potassium lauroyl hydrolyzed collagen	Sodium myristoyl sarcosinate
	Potassium lauryl sulfate	Sodium myristyl sulfate
15	Potassium myristoyl hydrolyzed collagen	Sodium nonoxynol-6 phosphate
	Potassium oleoyl hydrolyzed collagen	Sodium octoxynol-2 ethane sulfonate
	Potassium palmitate	Sodium octyl sulfate
	Potassium undecylenoyl hydrolyzed collagen	Sodium oleoyl hydrolyzed collagen
	PPG-2-isodeceth-4, -6, -9, -12	Sodium stearoyl hydrolyzed collagen
20	PPG-6 C12-18 pareth-11	Sodium trideceth sulfate
	Protein hydrolysates	Sodium undecylenoyl hydrolyzed collagen
	Quaternium-80	Sodium/TEA-lauroyl hydrolyzed collagen
	Quillaja saponaria extract	Sodium/TEA-lauroyl hydrolyzed keratin
	Raffinose laurate, R. myristate, R. oleate	Sorbitan isostearate
25	Raffinose palmitate, R. stearate	Stearoyl sarcosine
	Ricinoleamidopropyl betain	Sulfated castor oil
	Silicone quaternium-1, -8, -9	TEA-cocoyl glutamate
	Sodium alpha olefin sulfonate	TEA-cocoyl hydrolyzed collagen
	Sodium cocoamphoacetate	TEA-cocoyl hydrolyzed soy protein
30	Sodium cocoyl hydrolyzed wheat protein	TEA-C12-15 alkyl sulfate
	Sodium cocoyl isethionate	TEA-hydrogenated tallow glutamate
	Sodium C12-13 sulfate	TEA-lauroyl glutamate
	Sodium C12-14 pareth-2 sulfate	TEA-lauroyl keratin amino acids
	Sodium C12-15 pareth-3 sulfonate	TEA-lauroyl sarcosinate
35	Sodium C12-15 pareth-7 carboxylate	TEA-lauryl sulfate
	Sodium C12-15 pareth-7 sulfonate	TEA-myristoyl hydrolyzed collagen
	Sodium C12-15 pareth-8 carboxylate	Tocophereth-5 -10 -18 -20 -30 -50 -70
	Sodium C12-15 pareth-15 sulfonate	Trideceth-7 carboxylic acid
	Sodium C12-18 alkyl sulfate	Trideceth-9
40	Sodium C13-17 alkane sulfonate	Trideceth-19-carboxylic acid
	Sodium C14-16 olefin sulfonate	Tridecyl ethoxylate
	Sodium cetearyl sulfate	Triethanolamine C10-14 sulfate
	Sodium cetyl oleyl sulfate	Trilauryl phosphate
	Sodium coco-tallow sulfate	Wheat germamidopropyl betaine
45	Sodium cocoyl glutamate	Yucca vera extract
	Sodium cocoyl hydrolyzed collagen	<u>Suspending agent</u>
	Sodium cocoyl hydrolyzed soy protein	Acrylates/ceteth-20 methacrylates copolymer
	Sodium cocoyl sarcosinate	Acrylates/steareth-20 methacrylate copolymer
	Sodium dimethicone copolyol acetyl	Algin
50	methyltaurate	Bentonite
	Sodium hydrogenated tallow glutamate	C10 polycarbamyl polyglycol ester
	Sodium isodecyl sulfate	Calcium alginate
	Sodium laureth-5 carboxylate	

	Carbomer, C. 934	/C10-C30 alkyl acrylate crosspolymer
	Carrageenan (<i>Chondrus crispus</i>)	/ceteth-20 itaconate copolymer
	Celulóse gum	/ceteth-20 methacrylates copolymer
5	Cetyl hydroxyethylcellulose	/steareth-20 itaconate copolymer
	Dihydrogenated tallow phthalic acid amide	/steareth-20 methacrylate copolymer
	Distearyl phthalic acid amide	/steareth-50 acrylate copolymer
	Guar (<i>Cyanopsis tetragonoloba</i>) gum	/vinyl isodecanoate crosspolymer
	Hectorite	acid/acrylonitrogens copolymer
	Hydroxypropylcellulose	
10	Isobutylene/MA copolymer	/magnesium hydroxide stearate
	Magnesium aluminum silicate	acrylates/acrylonitrogens copolymer
	Methylcellulose	alginate
	Pentasodium triphosphate	alcohol
	Polyethylene, P. micronized	acid
15	Propylene glycol alginate	alcohol, B. behenate
	Quaternium-18 bentonite	nite
	Quaternium-18 hectorite	olycarbamyl polyglycol ester
	Sodium magnesium silicate	5 alcohols
	Sodium polynaphthalenesulfonate	6 alcohols
20	Stearalkonium bentonite, S. hectorite	6 acid
	Steareth-10 allyl ether/acrylates copolymer	Calcium alginate
	(<i>Astragalus gummifer</i>) gum	Calcium carrageenan
	ribehenin	Caprylic alcohol
	rihydroxystearin	Carbomer
25	omethamine magnesium aluminum silicate	Carboxymethyl hydroxyethylcellulose
	anthan gum	Carrageenan (<i>Chondrus crispus</i>)
	Sweetener	Cellulose, C. gum
	saccharin	Cetearyl alcohol, C. behenate
30	acid	Cetearyl octanoate, C. stearate
	acid	Cetostearyl stearate
	, ammoniated	Cetyl alcohol
	corn starch	Cetyl hydroxyethylcellulose
35		Cetyl myristate, C. palmitate
		Cocamide
		Cocamide MEA, C. MIPA
		Cocamidopropylamine oxide
		Coco-betaine
		Coco-rapeseedate
		Coco/oleamidopropyl betaine
40	saccharin	Cocoyl amido hydroxy sulfo betaine
		Cocoyl monoethanolamide ethoxylate
		Colloidal silica sols
		DEA-hydrolyzed lecithin
	accelerator	DEA-linoleate
	tyrosine	DEA-olet-3 phosphate
45	Carrot (<i>Daucus carota</i>) extract	DEA olet-10 phosphate
	acetyl tyrosinate methylsilanol	Decyl alcohol
	droxyacetone	Dextran
	mally tyrosinate	Dextrans
	alba extract in white emulsion	Dilaureth-10 phosphate
	tyrosinate	Dioleth-8 phosphate
50		DMHF
	ckener	Ethoxylated fatty alcohol
	-VA crosspolimer	

	Gellan gum	
	Glyceryl behenate, G. stearate	
	Glycéryl polymethacrylate	
	Guar (<i>Cyanopsis tetragonoloba</i>) gum	
5	Guar hydroxypropyltrimonium chloride	
	Hectorite	
	Hexyl alcohol	
	Hydrated silica	
	Hydrogenated rapeseed oil	
10	Hydrogenated starch hydrolysate	
	Hydrogenated talloweth-60 myristyl glycol	
	Hydrolyzed oat flour	
	Hydrolyzed transgenic collagen	
	Hydroxyethylcellulose	
15		
	Hydroxypropyl chitosan	PEG-6 beeswax
	Hydroxypropyl guar	PEG-7 hydrogenated castor oil
	Hydroxypropyl methylcellulose	PEG-8
	Hydroxypropylcellulose	PEG-8 dioleate, P. distearate
20	Isoceteth-10	PEG-8 stearate
	Isostearamide DEA	PEG-9M
	Isostearamidopropylamine oxide	PEG-12 beeswax
	Isostearoamphopropionate	PEG-18 glyceryl oleate/cocoate
	Jojoba wax	PEG-23M
25	Karaya (<i>Sericulua urens</i>) gum	PEG-28 glyceryl tallowate
	L_____ DEA, L. MEA, L. MIPA	PEG-40 jojoba oil
	L_____ midopropyl betaine	PEG-45M
	Laureth-10	PEG-50 tallow amide
	L_____ -linoleic DEA	PEG-55 propylene glycol oleate
30	L_____ -linoleoyl diethanolamide	PEG-75 stearate
	L_____ -myristoyl diethanolamide	PEG-90M
	L_____ alcohol, L. betaine	PEG-100 stearate
	L_____ amide DEA, L. MEA	PEG-120 methyl glucose dioleate
	L_____ eic acid	PEG-150 distearate
35	L_____ mic acid	PEG-150 pentaerythrityl tetrastearate
	L_____ bean (<i>Ceratonia siliqua</i>) gum	PEG-160M
	Magnesium aluminum silicate	PEG-200 glyceryl stearate
	MDM hydantoin	PEG-200 glyceryl tallowate
	Methylcellulose	Pentaerythrityl tetrabehenate
40	Montmorillonite	Pentaerythrityl tetrastearate
	Myristamide DEA, M. MEA	Poloxamer 105, 124, 185, 237, 238, 338, 407
	Myristamine oxide	Polyacrylic acid
	Myristyl alcohol	Polysorbate 20
	Octacosanyl stearate	Potassium alginate, P. chloride
45	Oleamide, O. DEA, O. MEA	Potassium oleate, P. stearate
	Palmitamide MEA	PPG-5-ceteth-10 phosphate
	Pectin	Propylene glycol stearate
	PEG-2 laurate	PVM/MA decadiene crosspolymer
	PEG-3 distearate, P. lauramide	PVP
50	PEG-3 lauramine oxide	Quaternium-18 bentonite
	PEG-4 diisostearate, P. oleamide	Quaternium-18 hectorite
	PEG-5M	Rapeseed oil, ethoxylated high erucic acid

	Ricinoleamide MEA	Isopropyl dibenzoylmethane
	Sesamide DEA	Menthyl anthranilate
	Sodium acrylates/vinyl isodecanoate crosspolymer	2,2',4,4'-Tetrahydroxybenzophenone
	Sodium carbomer, S. carrageenan	Titanium dioxide
5	Sodium ceteth-13-carboxylate	Zinc oxide
	Sodium chloride	
	Sodium magnesium silicate, S. stearate	UVB absorber
	Sorbitan sesquisostearate, S. tristearate	Argania spinosa oil
	Soyamide DEA	Benzophenone-1 -2 -3 -4 -6 -9 -11
10	Soyamidopropyl betaine	Corallina officinalis
	Starch polyacrylonitrile copolymer-potassium salt	DEA-methoxycinnamate
	Starch polyacrylonitrile copolymer-sodium salt	Drometrizole
	Stearalkonium bentonite, S. hectorite	Ethyl dihydroxypropyl PABA
	Stearamide	Etocrylene
15	Stearamide DEA, S. MEA, S. MEA-stearate	homosalate
	Stearamidopropyl dimethylamine lactate	Isoamyl p-methoxycinnamate
	Stearamine oxide	Isopropyl methoxycinnamate
	Steareth-10 allyl ether/acrylates copolymer	Isopropylbenzyl salicylate
	Stearic acid	4-Methylbenzylidene camphor
20	Stearyl alcohol	Octocrylene
	Synthetic beeswax	Octrizole
	Tallowamide MEA	Octyl dimethyl PABA
	TEA-acrylates/acrylonitrogens copolymer	Octyl methoxycinnamate
	Tragacanth (<i>Astragalus gummifer</i>) gum	Octyl salicylate, O. triazne
25	Tribehenin	PABA
	Trihydroxystearin	PEG-25 PABA
	Tromethamine magnesium aluminum silicate	Phenylbenzimidazole sulfonic acid
	Wheat germamide DEA	Shea butter, ethoxylated
	Wheat germamidopropyl betain	TEA-salicylate
30	Xanthan gum	Titanium dioxide
		TriPABA panthenol
		Zinc oxide
	Thixotrope	
	Bentonite	Vegetable oil
	Hectorite	Apricot (<i>Prunus armeniaca</i>) kernel oil
35	Sodium magnesium silicate	Avocado (<i>Persea gratissima</i>) oil
	Stearalkonium bentonite	Baobab oil
		Calendula officinalis oil
	Toner	Chaulmoogra (<i>Taraktogenos kurzii</i>) oil
	Althea officinalis extract	Coconut (<i>Cocos nucifera</i>) oil
40	Clover (<i>Trifolium pratense</i>) extract	Corn (<i>Zea mays</i>) oil
	Dog rose (<i>Rosa canina</i>) hips extract	Cottonseed (<i>Gossyplum</i>) oil
	Ginseng (<i>Panax ginseng</i>) extract	Gold of pleasure oil
	Horsetail extract	Grape (<i>Vitis vinifera</i>) seed oil
	Lemon bioflauonoids extract	Hazel (<i>Corylus avellana</i>) nut oil
45	Meadowsweet (<i>Spiraea ulmaria</i>) extract	Hybrid sunflower (<i>Helianthus annuus</i>) oil
	Nettle (<i>Urtica dioica</i>) extract	Hydrogenated coconut oil
	Rose (<i>Rosa multiflora</i>) extract	Hydrogenated cottonseed oil
	Rosemary (<i>Rosmarinus officinalis</i>) extract	Hydrogenated vegetable oil
50		Jojoba (<i>Buxus chinensis</i>) oil
	UVA absorber	Kukui (<i>Aleurites molaccana</i>) nut oil
	Benzophenone-1, -2, -3, -4, -6, -8, -9, -11, -12	Macadamia ternifolia nut oil
	Butyl methoxydibenzoylmethane	Meadowfoam (<i>Limnanthes alba</i>) seed oil
	Corallina officinalis	

	Mexican poppy oil	Retinyl palmitate polypeptide
	Palm (<i>Elaeis guineensis</i>) kernel oil	Retinyl propionate
	Partially hydrogenated soybean oil	Riboflavin tetraacetate
5	Peach (<i>Prunus persica</i>) kernel oil	Sodium ascorbate
	Peanut (<i>Arachis hypogaea</i>) oil	Thiamine HCL
	Pecan (<i>Carya illinoensis</i>) oil	Tocopherol
	Pumpkin (<i>Cucurbita pepo</i>) seed oil	Tocopherol acetate, T. succinate
	Quinoa (<i>Chenopodium quinoa</i>) oil	
	Rapeseed (<i>Brassica campestris</i>) oil	
10	Rice (<i>Oryza sativa</i>) bran oil	Wax
	Safflower (<i>Carthamus tinctorius</i>) oil	Bayberry (<i>Myrica cerifera</i>) wax
	Seabuckthorn oil	Behenoxy dimethicone
	Sesame (<i>Sesamum indicum</i>) oil	C16-18 alkyl methicone
	Sisymbrium irio oil	Candelilla (<i>Euphorbia cerifera</i>) wax
15	Soybean (<i>Glycine soja</i>) oil	Carnauba (<i>Copernicia cerifera</i>) wax
	Sunflower (<i>Helianthus annuus</i>) seed oil	Ceresin
	Walnut (<i>Juglans regia</i>) oil	Cetyl dimethicone, C. isoctanoate
	Wheat (<i>Triticum vulgare</i>) germ oil	Dimethyldimethylpolysiloxane
	Wild borage oil	Dimethiconol hydroxystearate
20		Dimethiconol stearate
	Vitamin	Hydrogenated castor oil
	Aesculus chinensis extract	Hydrogenated cottonseed oil
	Ascorbic acid	Hydrogenated jojoba oil, H.j. wax
	Ascorbic acid polypeptide	Hydrogenated palm kernel oil
25	Ascorbyl palmitate	Hydrogenated rapeseed oil
	Biotin	Hydrogenated rice bran wax
	Calcium pantothenate	hydrogenated vegetable oil
	Cholecalciferol	Isooctadecyl isononanoate
	Cyanocobalamin	Japan (<i>Rhus succedanea</i>) wax
30	Eclipta alba extract	Jojoba esters
	Emblica officinalis extract	Montan (Montan cera) wax
	Equisetum arvense extract	Ouricury wax
	Ergocalciferol	Ozokerite
	Esculin	Polyglyceryl-3 beeswax
35	Ethyl linoleate	Spermaceti
	Folic acid	Stearoxymethicone/dimethicone copolymer
	Laminaria japonica extract	Stearoxytrimethylsilane
	Marsilea minuta extract	Synthetic candelilla wax
	Melaleuca bracteata extract	Synthetic carnauba
40	Menadione	Wetting agent
	Nasturtium sinensis extract	Benzalkonium chloride
	Nelumbium speciosum extract	Benzethonium chloride
	Niacin	Cetalkonium chloride
	Niacinamide, N. ascorbate	Ceteareth-20
45	Nicotinamide	Ceteth-20
	Nicotinic acid	Cetyl pyridinium chloride
	Ocimum basilicum extract	Cocoamphodipropionic acid
	Panthenyl triacetate	Decaglycerol monodioleate
	Pantothenic acid	Deceth-9
50	Phytanadione	Dihydroabietyl methacrylate
	Pyridoxine HCl	Dimethicone copolyol methyl ether
	Retinol	Dimethicone copolyol phthalate
	Retinyl acetate, R. palmitate	Dioctyl sodium sulfosuccinate

Ethyl hydroxymethyl oleyl oxazoline
Hydroxylated milk glycerides
Isolaureth-6
Lanolin acid
5 Lauryl pyrrolidone
Lecithin
Methyl hydrogenated rosinate
Methyl rosinate
Nonyl nonoxynol-5
10 Octoxynol-8, 70
Oleth-15
Oleth-20 phosphate
PEG-9 castor oil
PEG-15 castor oil
15 PEG-20 glyceryl stearate
PEG-20 sorbitan triisostearate
PEG-45 palm kernel glycerides
PEG-60 almond glycerides, P.corn glycerides
PEG-60 shea butter glycerides
20 PEG-70 mango glycerides
PEG-75 shorea butter glycerides
PEG-80 sorbitan laurate
Poloxamer 123, 181, 182, 184, 235, 334
Polyether trisiloxane
25 Polyglyceryl-3 oleate
Polyglyceryl-6 dioleate
Polyglyceryl-10 tetraoleate
Polysorbate 60, 80
PPG-2-isodeceth-4, -6, -9, -12
30 PPG-10 lanolin alcohol ether
Propylene glycol
Sodium butoxyethoxy acetate
Sodium capryloamphohydroxypropylsulfonate
Sodium decyl diphenyl ether sulfonate
35 Sodium dodecyldiphenyl ether sulfonate
Sodium lauryl sulfate
Sulfated castor oil
Triisocetyl citrate
Triisostearin PEG-6 esters
40 Yucca vera extract

Claims:

1. A cosmetic composition comprising:
a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component randomly bonded to at least one poly(acrylic acid) component said polymer network capable of aggregation in response to a change in temperature; and
a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.
- 10 2. A cosmetic composition for topical application, comprising:
a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and
15 a cosmetically active agent selected to treat imperfections or disorders of the skin, said carrier and said agent disposed within an aqueous-based medium.
3. The cosmetic composition of claim 1, wherein the cosmetic composition is a shampoo and the cosmetically active agent comprises a cleansing surfactant.
- 20 4. The cosmetic composition of claim 1, wherein the cosmetic composition is a moisturizer and the cosmetically active agent comprises a moisturizer.
5. The cosmetic composition of claim 1, wherein the cosmetic composition
25 is a sunscreen and the cosmetically active agent comprises a UV-absorbing agent.
6. The cosmetic composition of claim 1, wherein the cosmetic composition is an acne cream and the cosmetically active agent comprises an antiacne agent.

7. The cosmetic composition of claim 1, wherein the cosmetic composition is a hair straightener and the cosmetic agent comprises a base for increasing the pH.

8. The cosmetic composition of claim 1, wherein the cosmetic composition
5 is a sunless tanning lotion and the cosmetically active agent comprises skin tinting agent.

9. The cosmetic composition of claim 1, wherein the cosmetic composition
is an antiperspirant and the cosmetically active agent comprises aluminum
10 chlorhydrate.

10. The cosmetic composition of claim 1, wherein the cosmetic composition
is a shaving cream and the cosmetically active agent comprises an emollient and a
foaming surfactant.

15

11. The cosmetic composition of claim 1, wherein the cosmetic composition
is a face cosmetic and the cosmetically active agent comprises a pigment.

12. The cosmetic composition of claim 1 or 2, wherein the cosmetic agent
20 comprises a hydrophobic material, wherein the cosmetically acceptable carrier
stabilizes the hydrophobic material in the aqueous medium.

13. The cosmetic composition of claim 2, wherein said cosmetic agent
selected to treat imperfections or disorders of the skin is selected from the group
25 consisting of acidulents, antiacne agents, anti-aging agents, anti-inflammatories, anti-
irritants, antioxidants, depilatories, detergents, disinfectants, emollients, exfoliants,
humectants, lubricants, moisturizers, skin conditioners, skin protectants, skin
lightening agents, skin soothing agents, sunscreening agents, and tanning accelerators
and mixtures thereof.

30

14. The composition of claim 4, wherein said composition further comprises a cosmetic agent selected from the group consisting of humectants and emollients.

15. The composition of claim 1 or 2, further comprising one or more
5 additives selected from the group consisting of preservatives, abrasives, acidulents, antiacne agents, anti-agin agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, antioxidants, astringents, antiperspirants, antiseptics, antistatic agents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents,
10 conditioners, deodorants, depilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glossers, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers,
15 powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or
20 fragrances.

16. The composition of claim 1, wherein the cosmetic composition takes a form selected from the group consisting of lotions, creams, sticks, roll-on formulations, mousses, sprays, aerosols, pad-applied formulations and masks.

25

17. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 27-40°C.

30

18. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 30 to 37°C.

19. The composition of claim 1, wherein said composition is formulated as a product selected from the group consisting of baby products, baby shampoos, lotions, powders and creams; bath preparations, bath oils, tablets and salts, bubble baths, bath fragrances, bath capsules; eye makeup preparations, eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover, mascara; fragrance preparations, colognes, toilet waters, powders and sachets; noncoloring hair preparations, hair conditioner, hair spray, hair straighteners, permanent waves, rinses, shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations, hair dye, hair tints, hair color sprays, hair lighteners and hair bleaches; makeup preparations, face powders, foundations, leg and body paints, lipstick; makeup bases, rouges and makeup fixatives; manicuring preparations, basecoats, undercoats, cuticle softeners, nail creams, nail extenders, mail polish and enamel, and remover, oral hygiene products, dentrifices, mouthwashes; personal cleanliness, bath soaps, detergents, deodorants, douches and feminine hygiene products; shaving preparations, aftershave lotion, beard softeners, men's talcum shaving cream, shaving soap, preshave lotions; skin care preparations, skin cleansing preparations, skin antiseptics, depilatories, face and neck cleansers, body and hand cleansers, foot powders; moisturizers, night preparations, paste masks, skin fresheners; and suntan preparations, suntan creams, gels and lotions, and indoor tanning preparations.

20

20. The cosmetic composition of claim 1 or 2, wherein the poloxamer component is present in an amount in the range of about 0.01 to 20 wt% and the poly(acrylic acid) component is present in the amount of about 0.01 to 20 wt%.

25

21. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamers.

30

22. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamer components randomly bonded to a poly(acrylic acid) backbone.

23. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer composition comprises a plurality of poly(acrylic acid) components randomly bonded to a poloxamer component.

5 24. The cosmetic composition of claim 1, wherein the aqueous-based medium is selected from the group consisting of water, salt solutions and water with water-miscible organic compound(s).

10 25. The cosmetic compositions of claim 1, further comprising an additive selected to increase transition temperature and increase viscosity of the reversible viscosifying polymer network.

15 26. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature and decrease viscosity of the reversible viscosifying polymer network.

20 27. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature without affecting viscosity of the reversible viscosifying polymer network.

25 28. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature and increase viscosity of the reversible viscosifying polymer network.

29. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature and decrease viscosity of the reversible viscosifying polymer network.

30. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature without affecting viscosity of the reversibly viscosifying polymer network.

5 31. The cosmetic composition of claim 1, further comprising an additive selected to increase viscosity without affecting transition temperature of the reversibly viscosifying polymer network.

10 32. The cosmetic composition of claim 1, further comprising an additive selected to decrease viscosity without affecting transition temperature of the reversibly viscosifying polymer network.

15 33. The cosmetic composition of claim 1 or 2, characterized in that the gel remains translucent to light before and after response to the environmental stimulus.

34. The cosmetic composition of claim 1, wherein the poly(acrylic acid) is branched.

20 35. Method of making a cosmetic composition, comprising:
dissolving a poloxamer capable of aggregation in response to a change in temperature in acrylic acid monomer;
initiating polymerization of the monomer to form a poly(acrylic acid) randomly bonded to the poloxamer, so as to form a reversibly viscosifying polymer composition;
mixing the reversibly gelling polymer compositions with a cosmetic agent which
25 imparts a desired cosmetic effect to the composition.

36. The method of claim 35, wherein a polymerization initiator is selected to provide the polymer network having a selected temperature of viscosification.

30 37. The method of claim 36, wherein one or more poloxamers are added.

38. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer network is present in an amount in the range of 0.01% - 10%.

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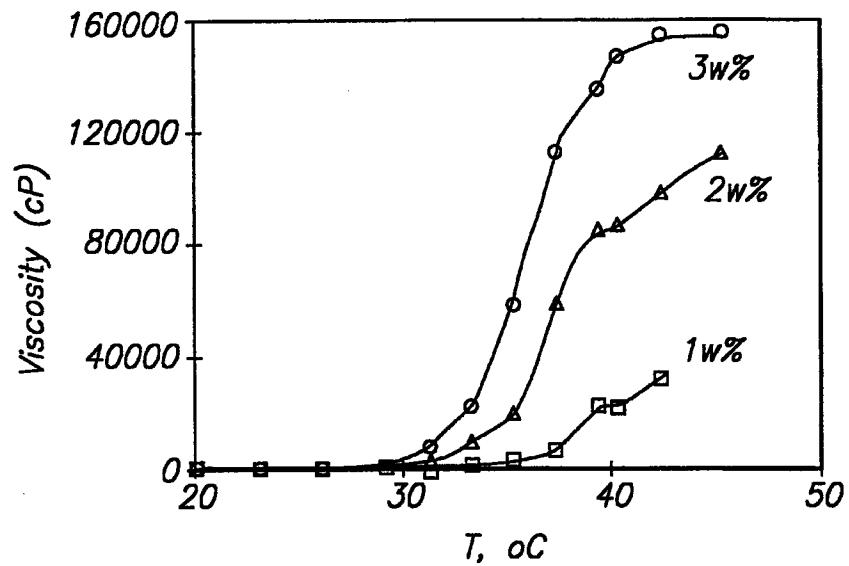


FIG. 1

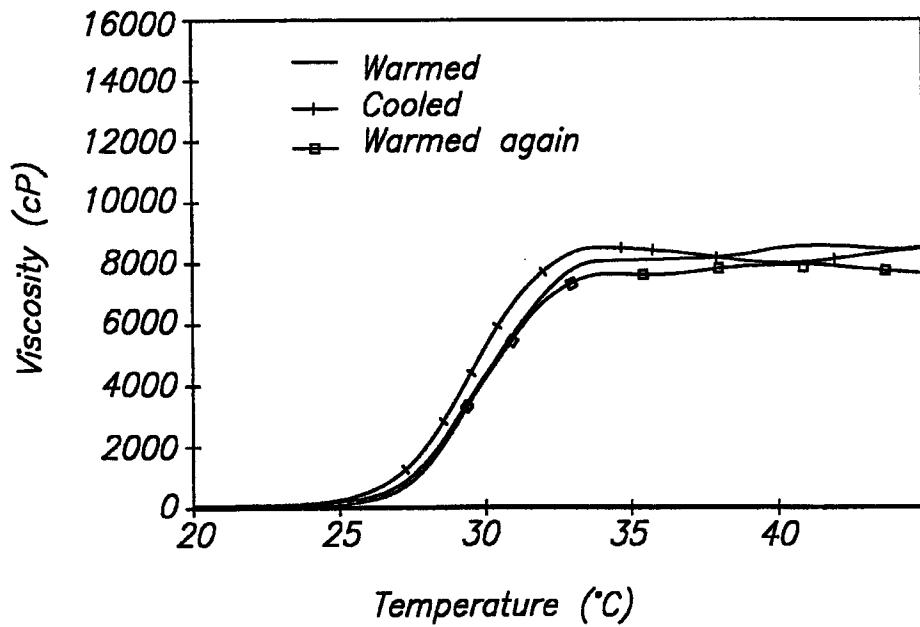
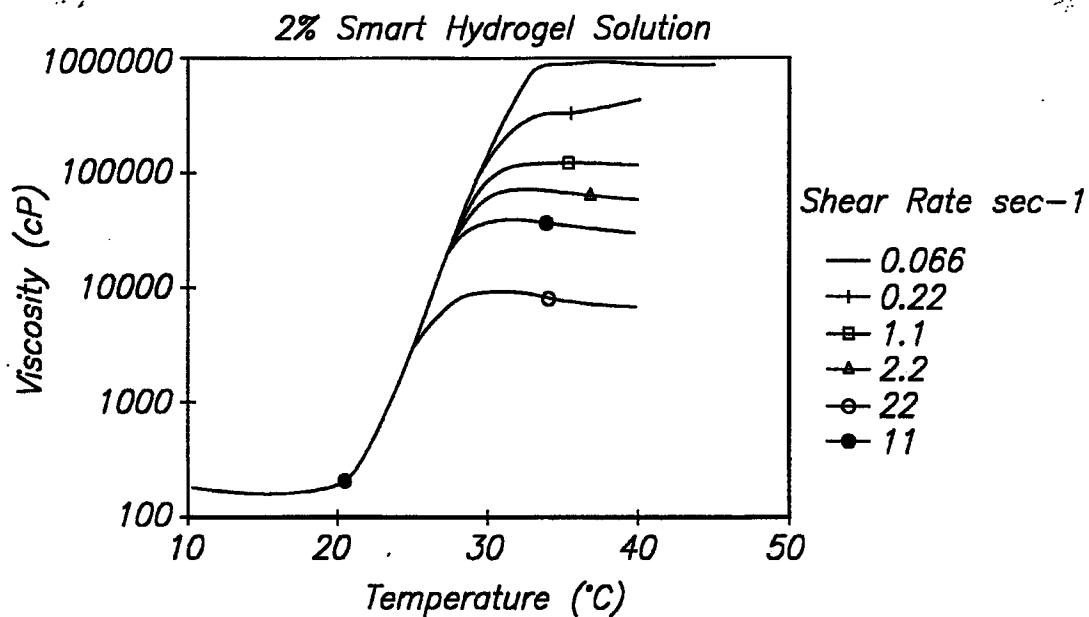
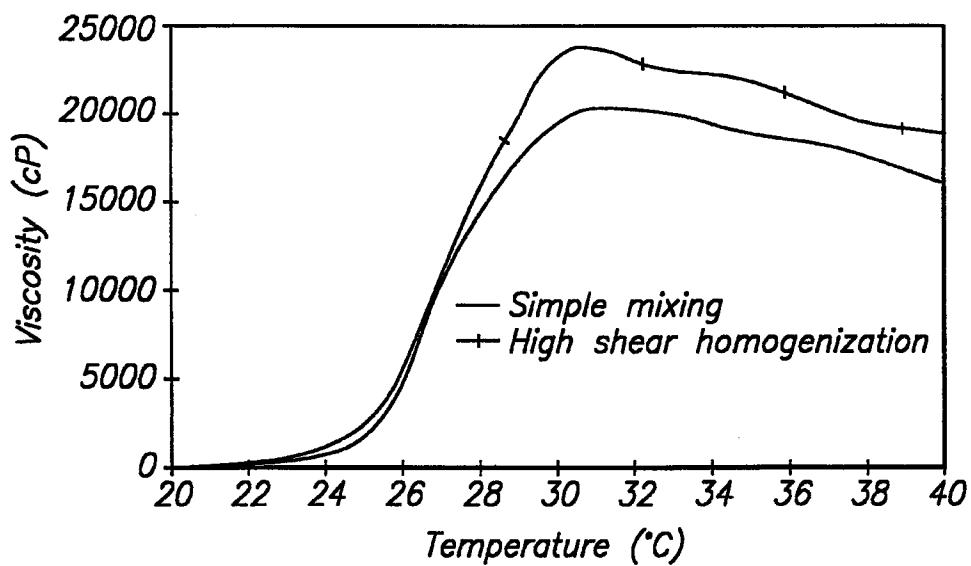


FIG. 2

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**FIG. 3****FIG. 4**

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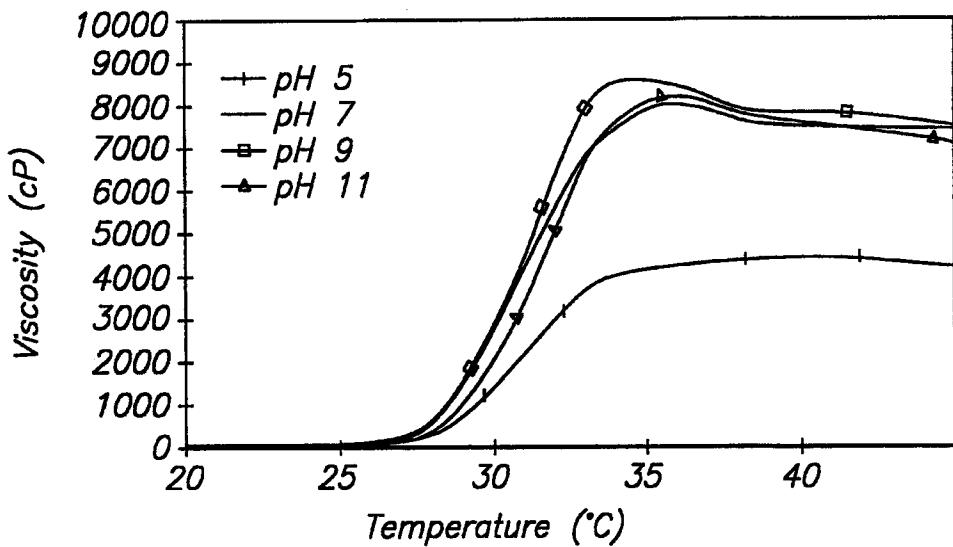


FIG. 5

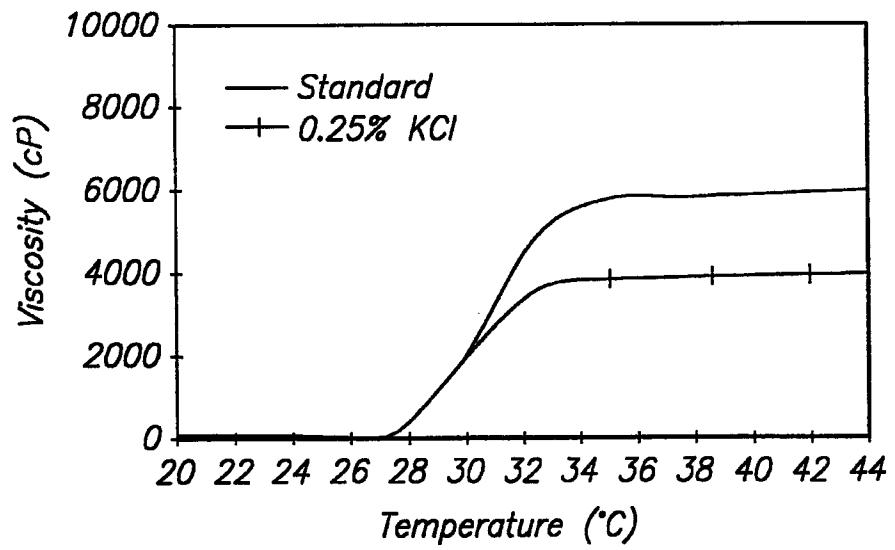


FIG. 6

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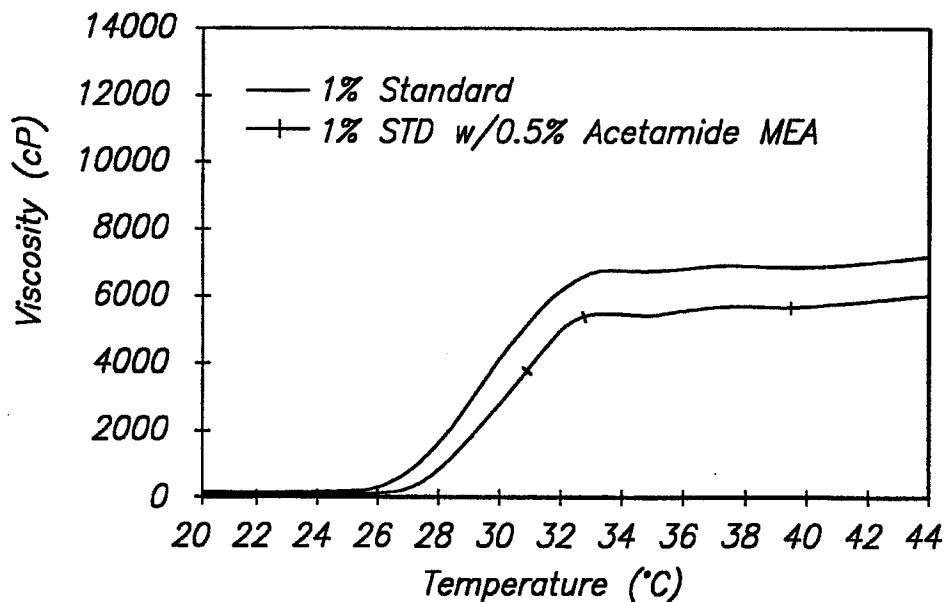


FIG. 7

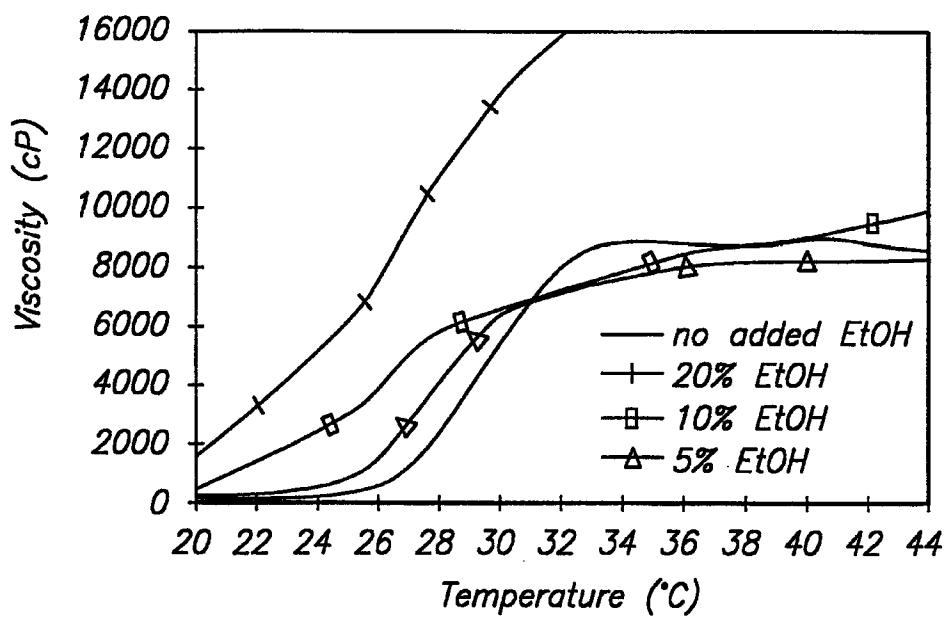
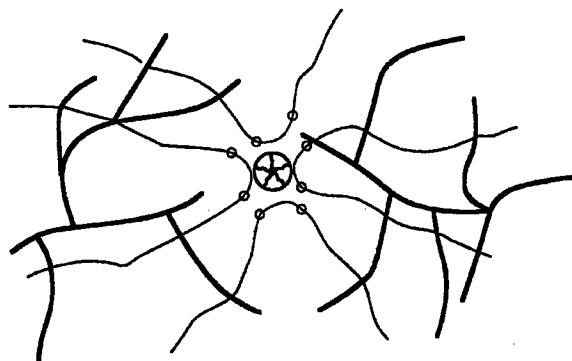


FIG. 8

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— PPO — PEO — Acrylic Acid Oil Droplet

FIG. 9

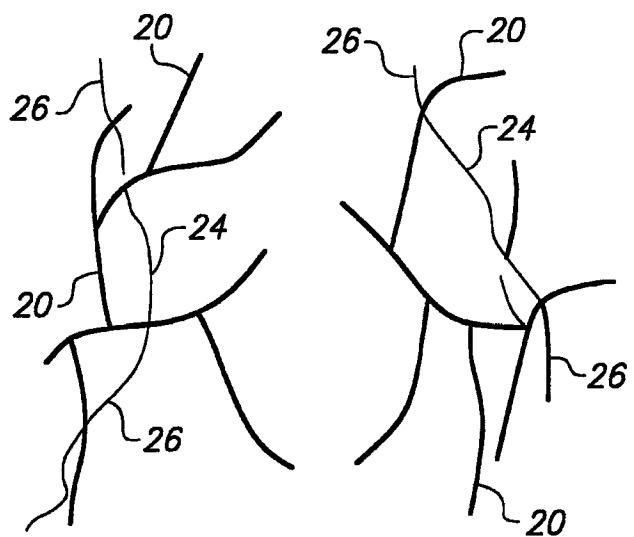
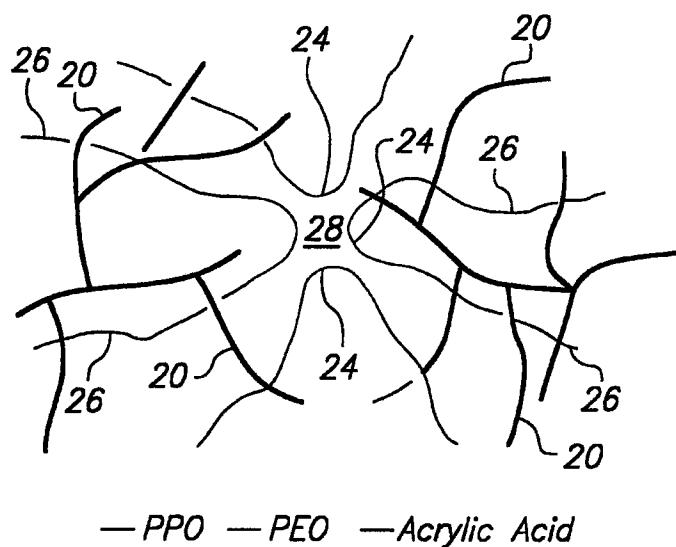


FIG. 10A

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— PPO — PEO — Acrylic Acid

FIG. 10B

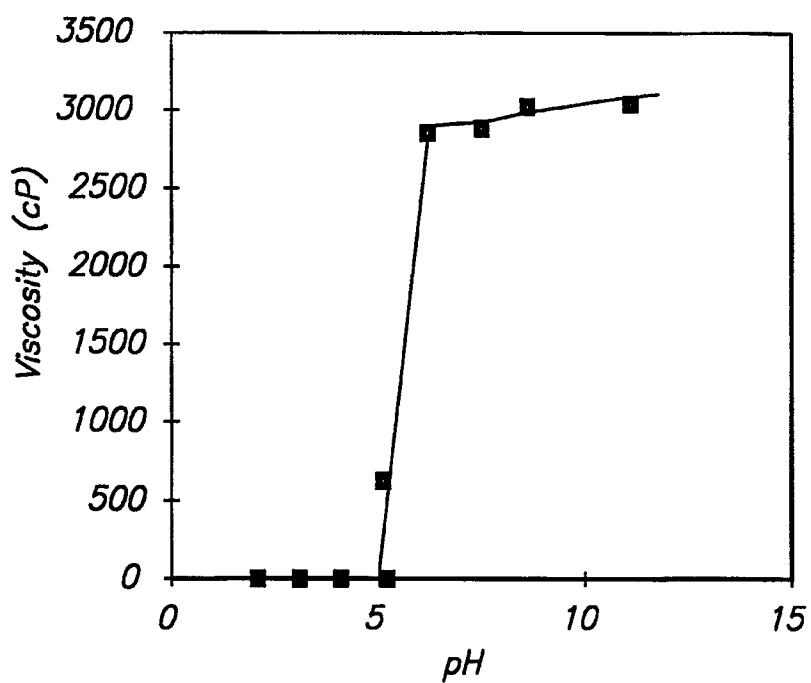
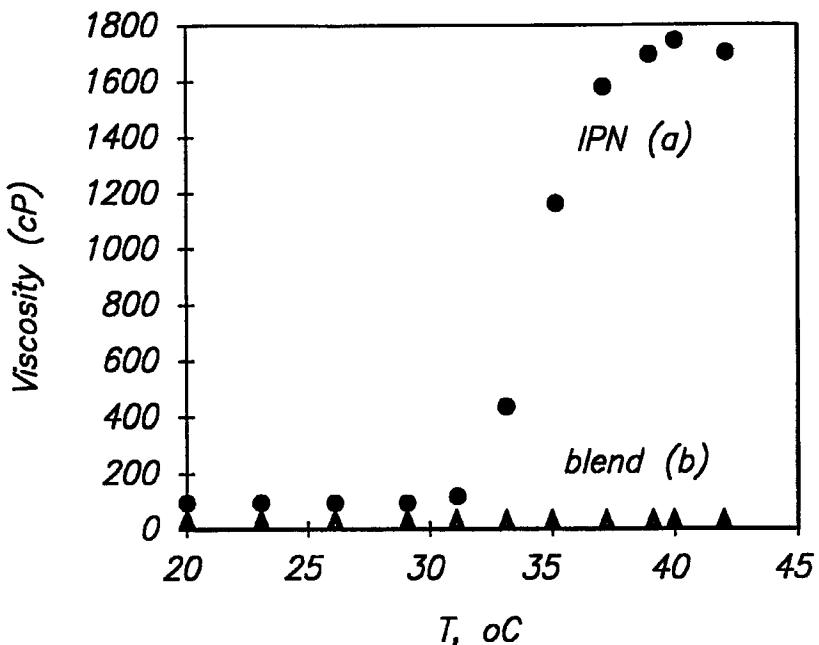
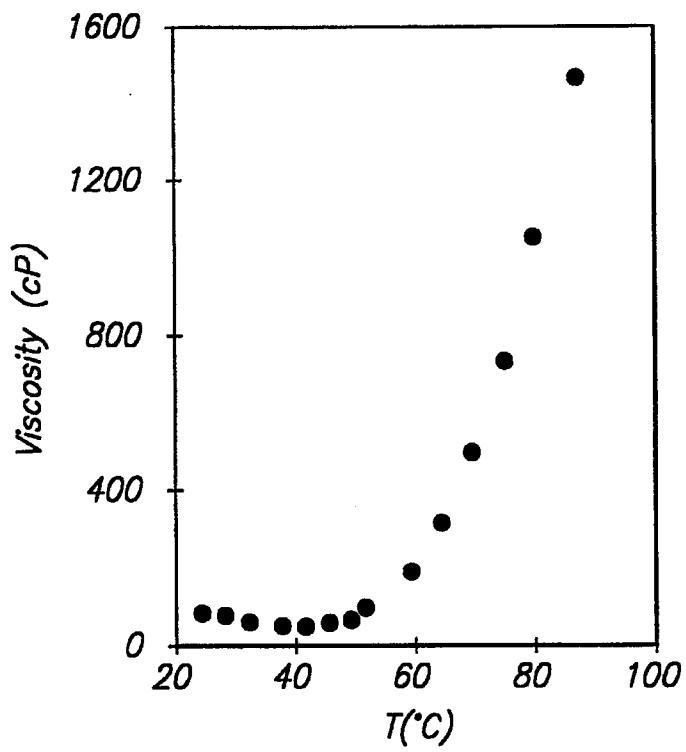
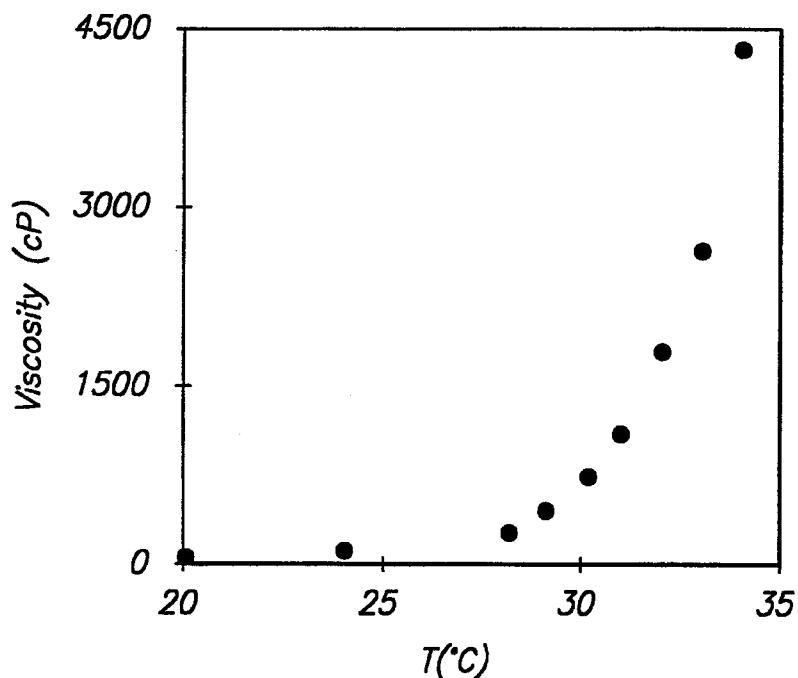
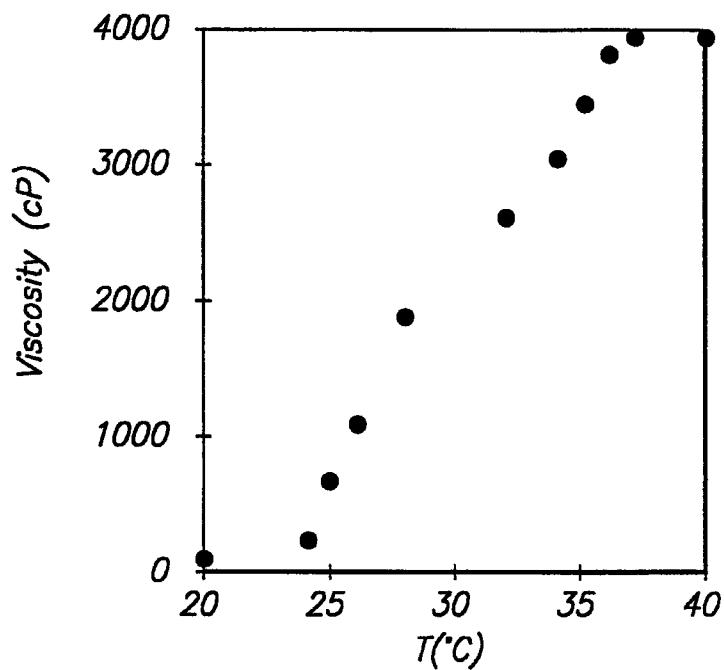


FIG. 11

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**FIG. 12****FIG. 13**

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**FIG. 14****FIG. 15**

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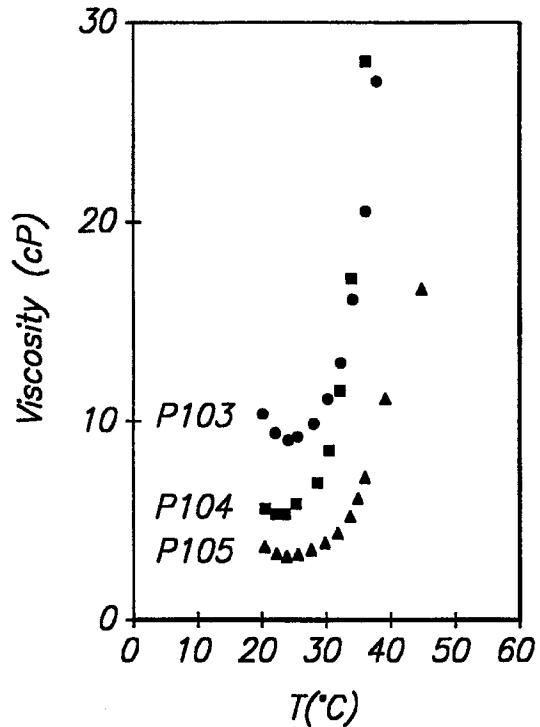


FIG. 16

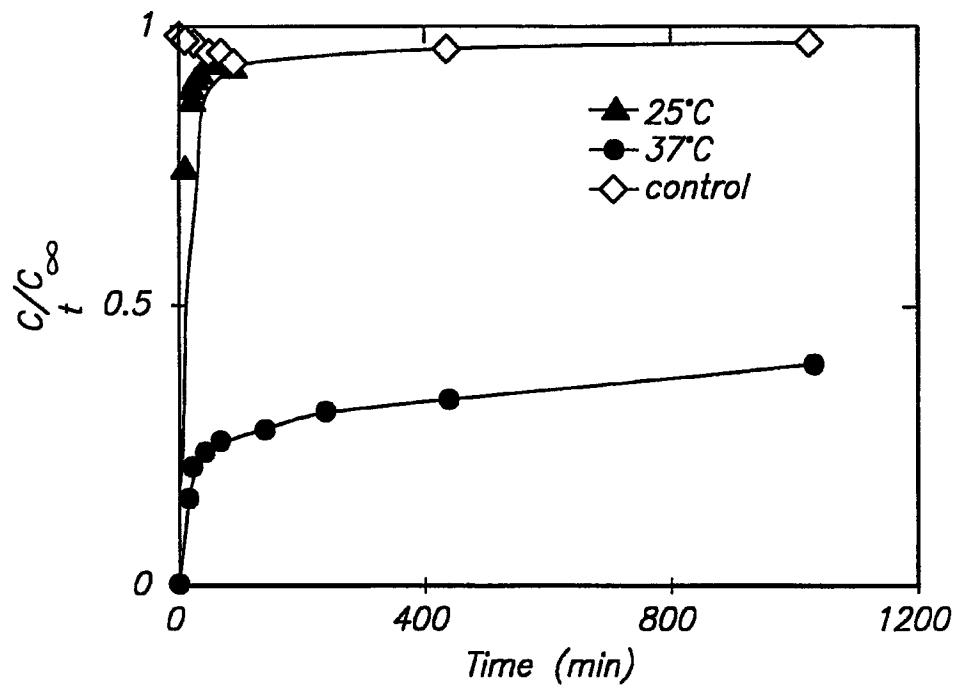


FIG. 17

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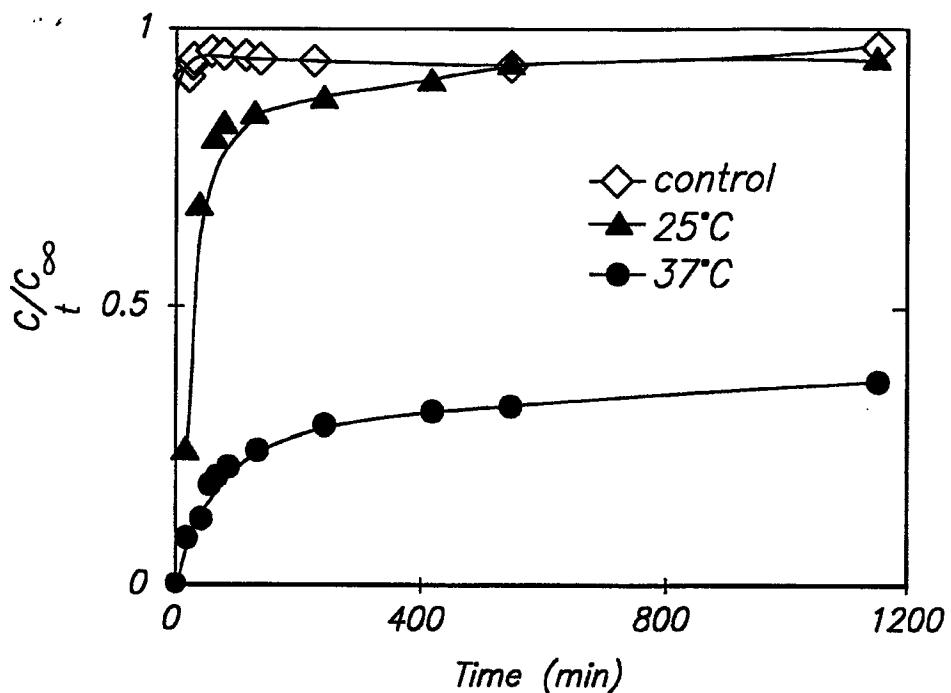


FIG. 18

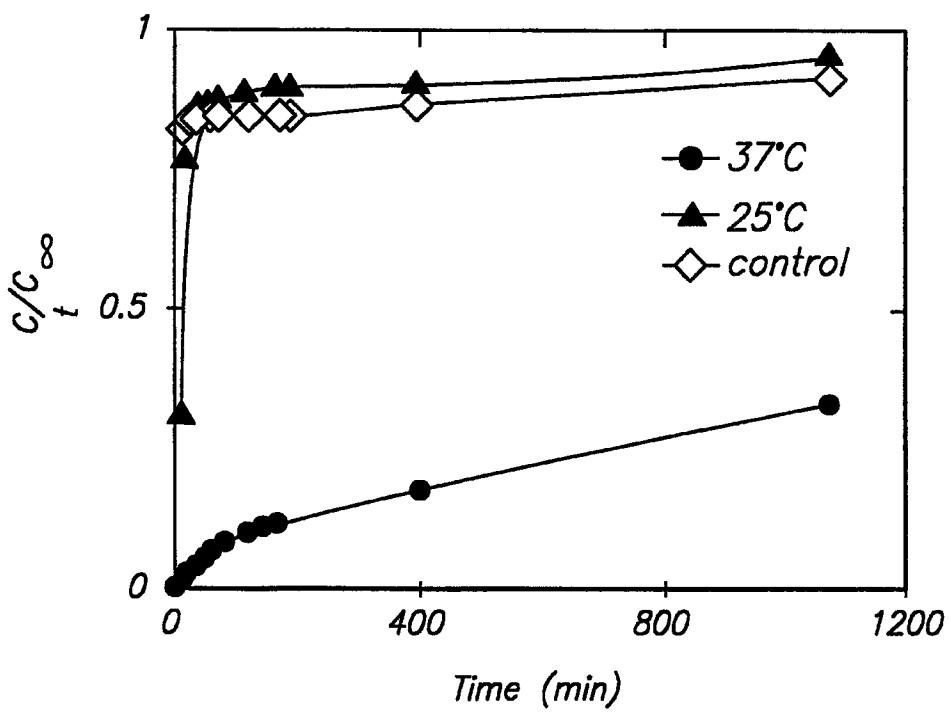


FIG. 19

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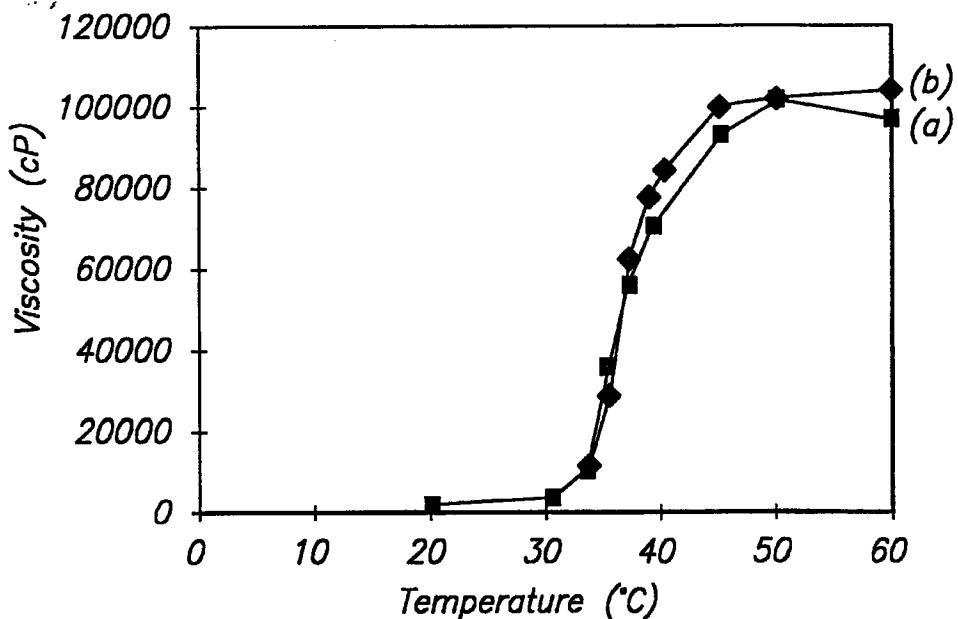


FIG. 20

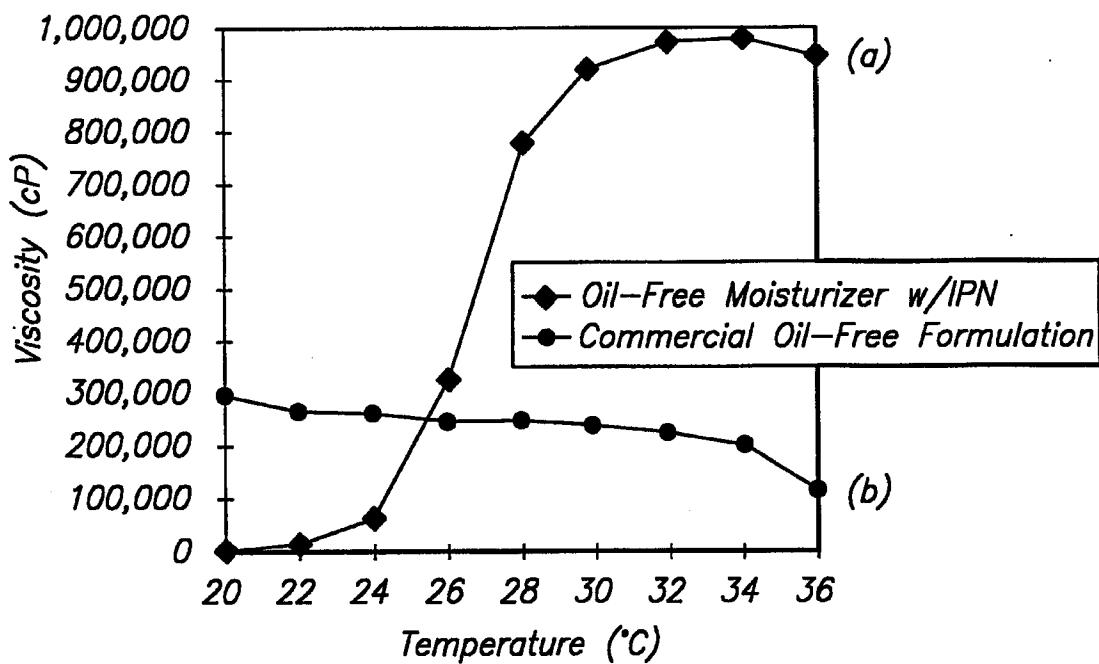


FIG. 21

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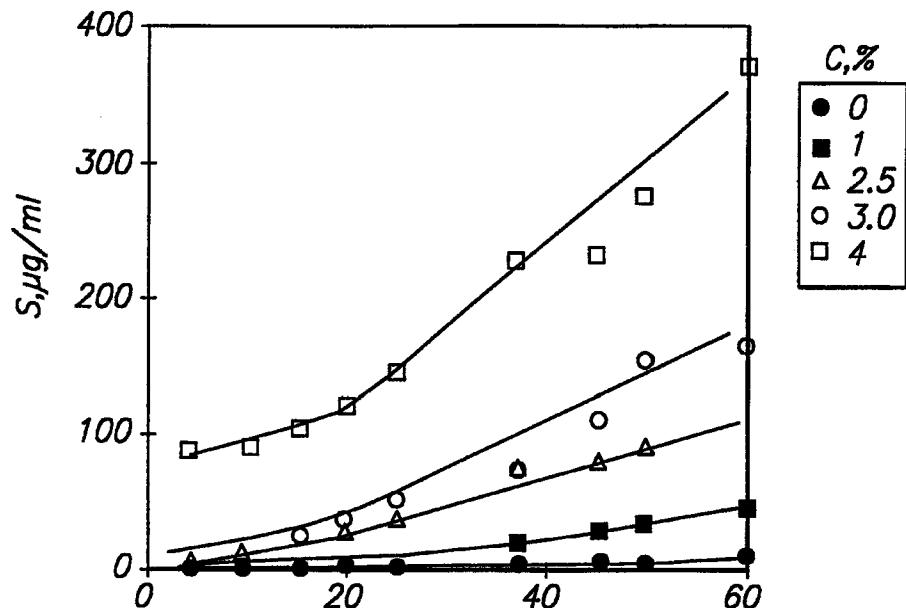


FIG. 22A

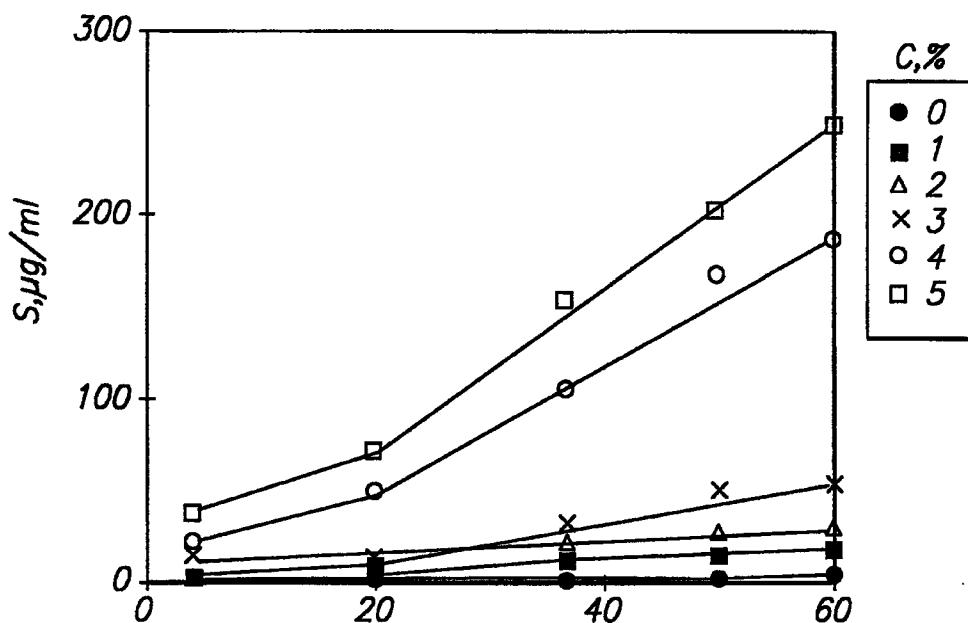


FIG. 22B

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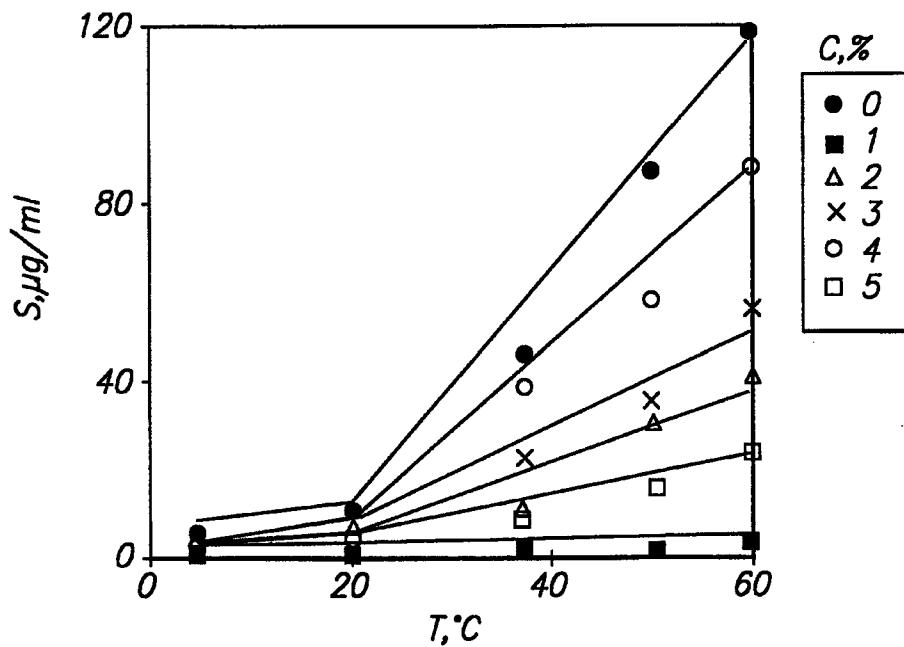


FIG. 22C

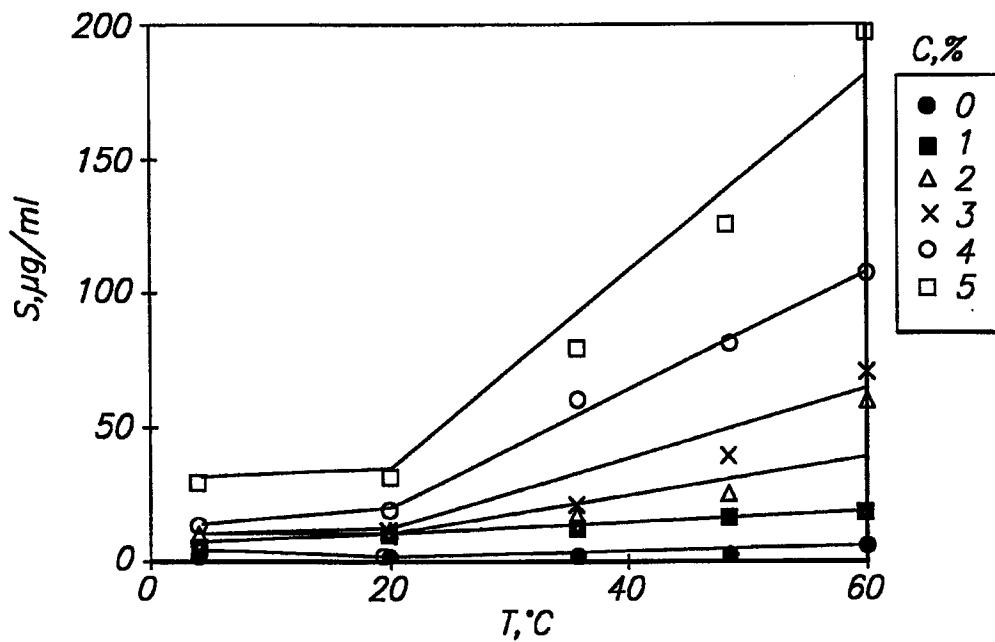


FIG. 22D

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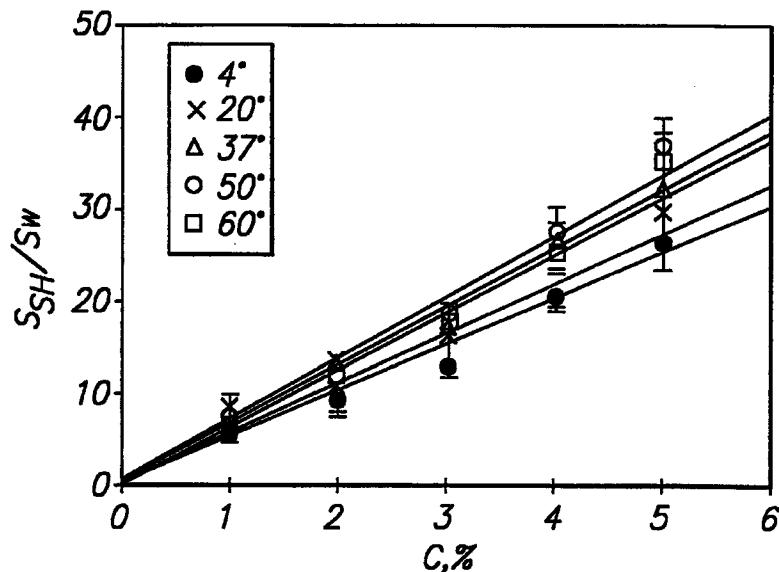


FIG. 23

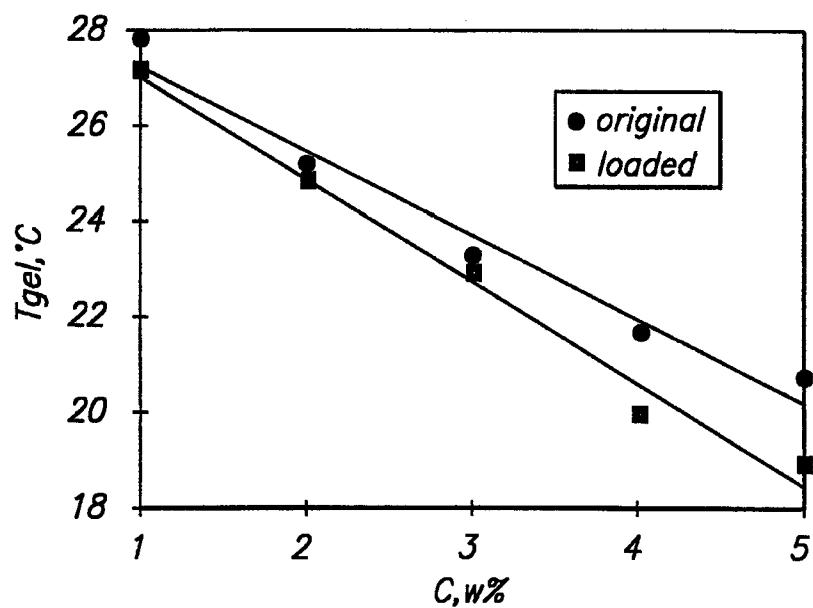


FIG. 24

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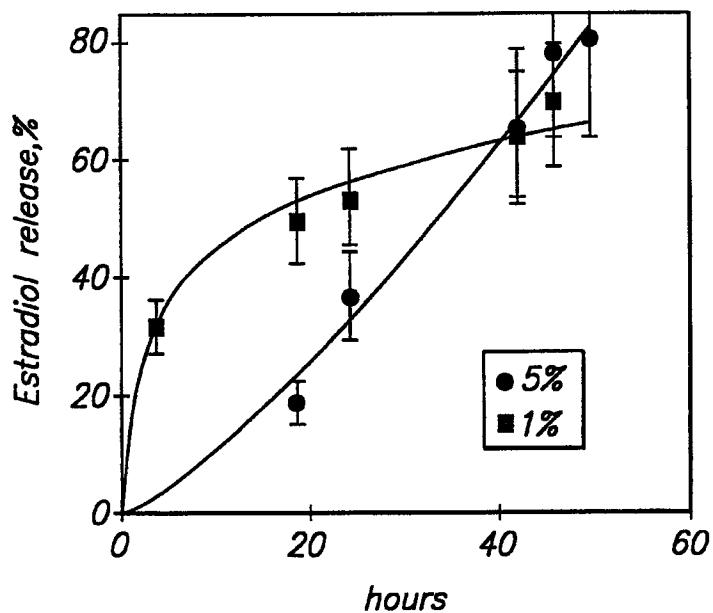


FIG. 25A

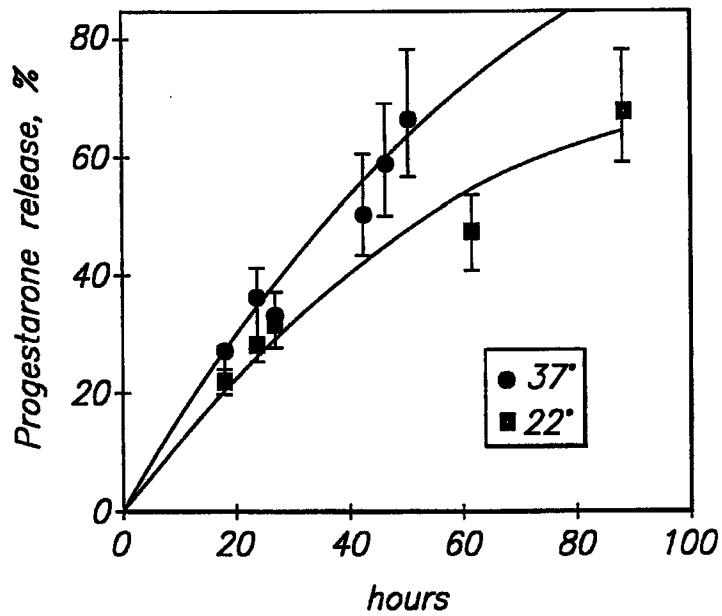


FIG. 25B

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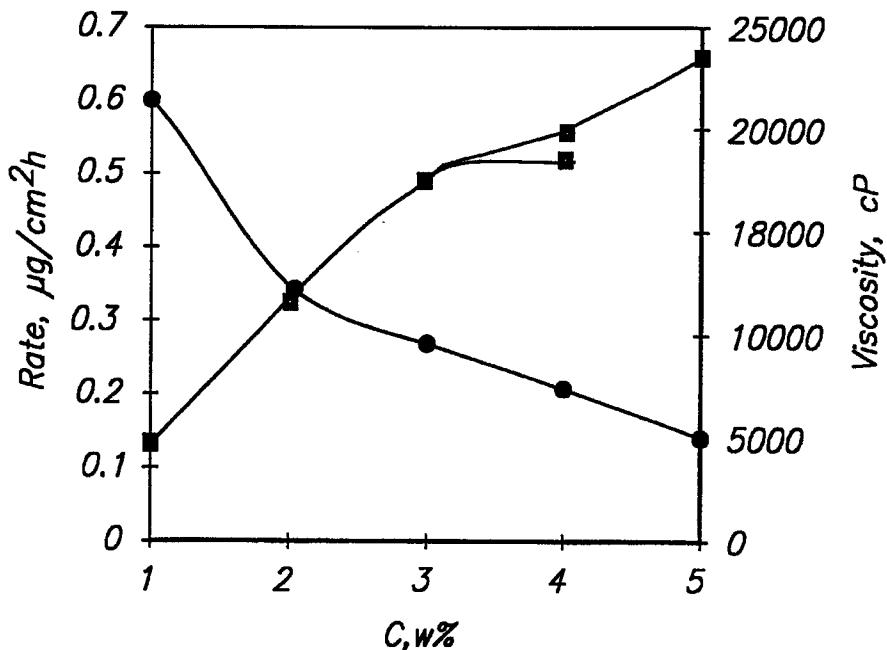


FIG. 26

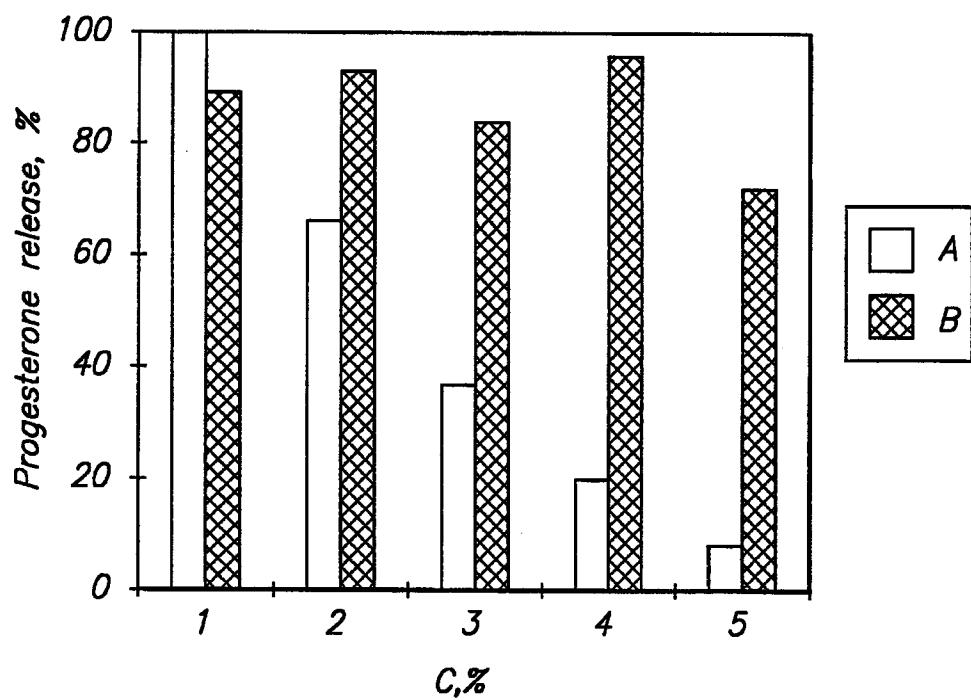


FIG. 27

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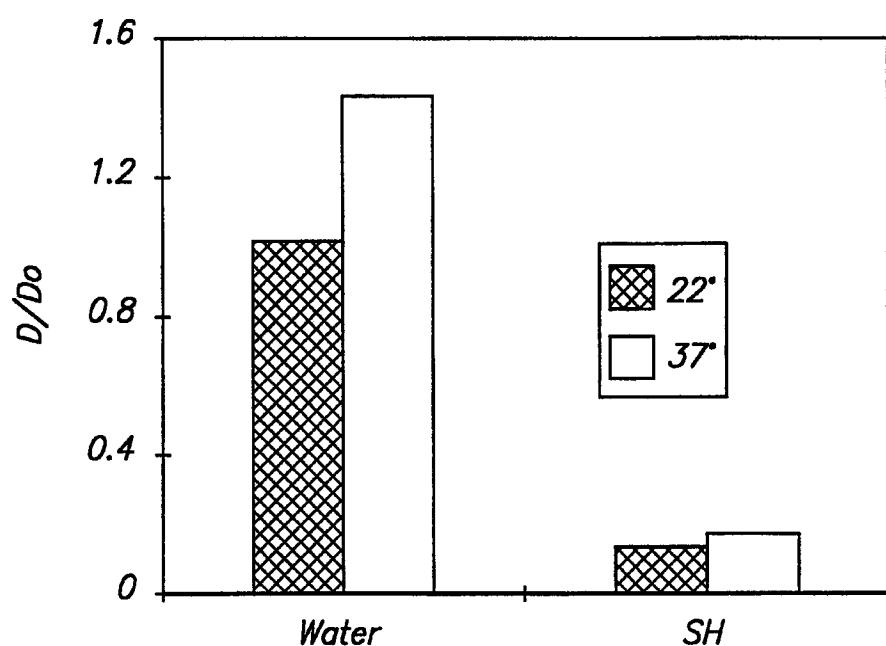


FIG. 28

INTERNATIONAL SEARCH REPORT

International application No. PCT/US98/09211

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :A61K 7/00, 7/021, 7/025, 7/06, 7/09, 7/16, 7/32, 7/42, 31/74
US CL :Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/49, 59, 63, 64, 65, 70.1, 70.2, 60.7, 78.02, 78.08, 400, 401, 405

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
APS: COSMETIC, POLYACRYLIC ACID, POLYMER NETWORK, POLOXAMER

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	US 5,662,892 A (BOLICH, JR. et al.) 02 September 1997, see entire document.	1-38
Y	US 5,106,609 A (BOLICH, JR. et al.) 21 April 1992, see entire document.	1-38

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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(54) AEROSOL TYPE PREPARATION

(57)Abstract:

PURPOSE: To obtain an aerosol preparation which has high safety and forms strong coating film which dries fast without tackiness and shows good adhesion to skins with very increased peeling resistance by using ABA type thermoplastic elastomer or a mixture thereof with a cellulosic component.

CONSTITUTION: The subject aerosol preparation contains, as coating film-forming agent, an ABA type thermoplastic elastomer such as a styrene-butadiene-styrene block copolymer, styrene-isoprene-styrene block copolymer or a mixture thereof with a cellulosic component such as methyl cellulose or hydroxyethylcellulose) in an amount of 0.05 to 5wt.%, preferably 0.1 to 2wt%. Liquefied natural gas and/or dimethyl ether are used as an injection agent and the amount is 20 to 55wt.% so that the pressure of the preparation is kept at 1 to 8kg/cm².

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⑩発明の名称 エアゾール製剤

⑪特 願 平1-111651

⑫出 願 平1(1989)4月28日

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明細書

1. 発明の名称

エアゾール製剤

2. 特許請求の範囲

- 1) 被膜形成剤としてABA型熱可塑性エラストマーを含有してなるエアゾール製剤。
- 2) 被膜形成剤としてABA型熱可塑性エラストマー及びセルロース系成分を含有してなるエアゾール製剤。
- 3) 被膜形成剤のABA型熱可塑性エラストマーと有効成分を含有してなるエアゾール製剤。
- 4) 被膜形成剤のABA型熱可塑性エラストマー及びセルロース系成分と有効成分を含有してなるエアゾール製剤。

3. 発明の詳細な説明

(1) 産業上の利用分野

本発明は香粧品、医薬部外品、外用医薬品、外

皮用品等に利用される外用組成物に関するものである。更に詳しくは、ABA型熱可塑性エラストマー或はABA型熱可塑性エラストマー及びセルロース系成分の混合物を被膜形成剤として含有し、皮膚上に噴霧することにより被膜を形成させ、効果的に有効成分を皮膚に適用させることを特徴とするエアゾール製剤に関するものである。これは、有効成分を変えることによって、それぞれ制汗剤、昆虫忌避剤、抗菌剤、消炎鎮痛剤等に応用することができる。

(2) 従来の技術

これまで被膜形成を有するエアゾール製剤としては、被膜形成剤としてアルミニウムオクトエートを用いたもの（特開昭52-21051）、ポリビニルビロドン、ポリビニルアセテートを用いたもの（特開昭54-46818）、ポリアミド樹脂、ビニル樹脂を用いたもの（特開昭54-140714）等が既に公知である。しかしながら、これらはいずれも①被膜の乾燥が遅い、②ベ

とついて使用感が悪い、③被膜が皮膚からはがれやすい、④アセトン、酢酸エチル等の有機溶媒に溶かしているため適用時に身体に有害である等の問題点を有している。本発明の被膜形成エアゾール製剤は、被膜形成剤として従来、接着剤、貼付剤、プラスチック改質剤等の材料として利用されていた熱可塑性エラストマーを用いたもので、先行技術とは全く異なる新規な発明である。

(3) 発明が解決しようとする問題点

被膜形成剤を配合したエアゾール製剤の先行技術は、上記のような種々の問題点を有している。従って、本発明の目的は以下に示すような特徴を有する被膜形成エアゾール製剤を得ることである。

- 1) 即乾性でべとつかない。
- 2) 被膜が強く衣服等を汚さない。
- 3) 安全性の高いエアゾール製剤であること。
- 4) 皮膚密着性がよくはがれにくい。

(4) 問題を解決するための手段

チレン-イソブレン-スチレンブロック共重合体(SIS)がある。ABA型テレブロック共重合体の市販品としては、例えば、シェル石油社製のカリフレックスTR-1107、TR-1111、旭化成社製のソルブレン-418、住友化学社製のスミカEX-2359、スミカEXB-2362や日本ゼオン社製クインタック-3420、クインタック3435等の商品を使用することができる。

これらのエラストマーの配合量は、0.05~5重量%、好ましくは0.1~2重量%が1種または2種以上の組み合わせで配合される。また、セルロース系成分としてはメチルセルロース、エチルセルロース、プロピルセルロース、ヒドロキシエチルセルロース、ヒドロキシプロピルセルロース、エチルヒドロキシエチルセルロース、メチルヒドロキシエチルセルロース等の被膜基剤からなる。尚、噴射剤としては例えば、液化天然ガス、ジメチルエーテル、或はフロン11、フロン12、フロン113、フロン114、フロン142、フロ

本発明者等はこのような状況に鑑み、鋭意研究を行った結果、被膜形成剤としてABA型の熱可塑性エラストマー或はABA型の熱可塑性エラストマー及びセルロース系成分を配合したエアゾール製剤が先の目的を十分満足する製剤であることを見い出し、本発明を完成した。

即ち、被膜形成剤としてABA型熱可塑性エラストマー或はABA型熱可塑性エラストマー及びセルロース成分を含有してなるエアゾール製剤は、べとつきがなく、かつ使用感のよい即乾性の被膜を形成することを見い出し本発明を完成した。

以下に本発明について更に詳細に説明する。

本発明に使用される熱可塑性のエラストマーはABA型テレブロック共重合体であり、一般式ABA(式中Aは実質的にモノビニル置換芳香族化合物重合体ブロック、Bは実質的に共役ジオレフイン重合体ブロック)で表されるテレブロック共重合体及びこれらの混合物である。ABA型テレブロック共重合体には、例えばスチレン-ブタジエン-スチレンブロック共重合体(SBS)、ス

ン123、フロン134a、フロン124、フロン132b、フロン133a等の亜酸化窒素ガス、炭酸ガス等、通常のエアゾール製剤で用いられる噴射剤が挙げられるが、液化天然ガス及びジメチルエーテルまたはこれらの混合物が特に好ましい。これらの噴射剤の配合量は10~60重量%、好ましくは20~55重量%、製剤の圧力が1~8kg/cm²となるように圧入される。

また、有効成分として、非ステロイド系の消炎鎮痛剤、例えばサリチル酸グリコール、サリチル酸メチル、ピロキシカム及びインドメタシン、ケトプロフェン、イブフェナック、ピロキシカム、ロキソプロフェン、チアプロフェン、プラノプロフェン、フェンブフェン、ジクロフェナック、フェルビナク、ケトロラック、ベルモプロフェン、ナブメトン、ナブロキセン、フルルビプロフェン等の酸性の非ステロイド系消炎鎮痛剤及びそのエステル誘導体、ステロイド系の消炎鎮痛剤例えば、フルオシノニド、プロピオニ酸クロベタゾール等、抗菌剤例えば、クロトリマゾール、トルナフテー

ト、硝酸エコナゾール、硝酸オモコナゾール、硝酸チオコナゾール、硝酸ケトコナゾール、硝酸ミコナゾール、硝酸イソコナゾール等、制汗剤例えばジエチルトルアミド、カンフル等が配合される。尚、これらの有効成分は0.01～4重量%、好ましくは0.03～3重量%が配合される。また、上記有効成分を溶解するために、クロタミトン、ベンジルアルコール、脂肪酸エステル、グリコール類等の溶解剤を配合することができる。尚、これらの溶解剤は0.5～50重量%、好ましくは1～30重量%が配合される。更に、使用感を良くする目的でタルク、ナイロンパウダー、シリコンパウダー等の粉末を配合することも可能である。

次に、本発明の製剤の製造方法について述べる。本発明の製剤を製造するためには、まず耐圧容器にエラストマー、有効成分、或はセルロース系成分、或は必要に応じて各種添加剤を加えた後、バルブを付け、噴射剤を圧入することによって製造することができる。

以下に実施例を示し本発明を更に具体的に説明

する。

実施例 1

スチレン-イソブレン-スチレンテレブロック共重合体（シェル化学製：カリフレックスTR-1107）0.5gを耐圧容器に入れ、バルブを付けた後、LPG/ジメチルエーテル（60/40:w/t%）52gを圧入し、被膜形成エアゾール製剤を得た。

実施例 2

スチレン-イソブレン-スチレンテレブロック共重合体（シェル化学製：カリフレックスTR-1107）1g、タルク0.1g及びクロトリマゾール1gを耐圧容器に入れ、バルブを付けた後、LPG/ジメチルエーテル（60/40:w/t%）52gを圧入し、被膜形成抗菌エアゾール製剤を得た。

実施例 3

スチレン-イソブレン-スチレンテレブロック共重合体（シェル化学製：カリフレックスTR-1111）0.5g及びアラントインクロルヒドロキシアルミニウム0.2g、タルク0.2%を耐圧容器に入れ、バルブを付けた後、LPG/ジメチルエーテル（70/30:w/t%）を圧入し、被膜形成制汗エアゾール製剤を得た。

実施例 4

スチレン-ブタジエン-スチレンテレブロック共重合体（旭化成社製：ソルブレン-411）0.5g及びトルナフテート1g、タルク0.2gを耐圧容器に入れ、バルブを付けた後、フロン11/フロン12（60/40:w%）50gを圧入し、被膜形成抗菌エアゾール製剤を得た。

実施例 5

スチレン-イソブレン-スチレンテレブロック共重合体（シェル化学製：カリフレックス-TR-1111）0.5g、*l*-メントール2g、サリチ

ル酸グリコール0.6g、タルク0.2gを耐圧容器に入れ、バルブを付けた後、LPG/ジメチルエーテル（60/40:w/t%）50gを圧入し、被膜形成消炎鎮痛エアゾール製剤を得た。

実施例 7

スチレン-イソブレン-スチレンテレブロック共重合体（シェル化学製：カリフレックス-TR-1107）0.5g、エチルセルロース0.05gを耐圧容器に入れ、バルブを付けた後、LPG/ジメチルエーテル（60/40:w/t%）52gを

圧入し、被膜形成エアゾール製剤を得た。

実施例 8

スチレン-イソブレン-スチレンテレブロック共重合体（シェル化学製：カリフレックス-TR 1107）1 g、タルク 0.1 g、エチルセルロース 0.07 g 及びクロトリマゾール 1 g を耐圧容器に入れ、バルブを付けた後、LPG/ジメチルエーテル（60/40 : w t %）52 g を圧入し、被膜形成抗菌エアゾール製剤を得た。

実施例 9

スチレン-イソブレン-スチレンテレブロック共重合体（シェル化学製：カリフレックス-TR 1111）0.5 g、エチルセルロース 1 g 及びアラントインクロルヒドロキシアルミニウム 0.2 g、タルク 0.2 % を耐圧容器に入れ、バルブを付けた後、LPG/ジメチルエーテル（70/30 : w t %）52 g を圧入し、被膜形成制汗エアゾール製剤を得た。

スチレン-イソブレン-スチレンテレブロック共重合体（シェル化学製：カリフレックス-TR 1111）0.5 g、エチルセルロース 0.5 g、ケトプロフェン 2 g、タルク 0.2 g を耐圧容器に入れ、バルブを付けた後、LPG/ジメチルエーテル（60/40 : w t %）50 g を圧入し、被膜形成消炎鎮痛エアゾール製剤を得た。

実施例 13

スチレン-イソブレン-スチレンテレブロック共重合体（シェル化学製：カリフレックス-TR 1111）0.5 g、エチルセルロース 1 g、ケトプロフェン 2 g、エタノール 5 g を耐圧容器に入れ、バルブを付けた後、LPG/ジメチルエーテル（60/40 : w t %）50 g を圧入し、被膜形成消炎鎮痛エアゾール製剤を得た。

参考例 1

可溶性ナイロン 5 g をエタノール 20 g に溶解し、これを耐圧容器に入れ、バルブを付けた後、

実施例 10

スチレン-ブタジエン-スチレンテレブロック共重合体（旭化成社製：ソルブレン-411）0.5 g、メチルセルロース 0.5 g 及びトルナフテート 1 g、タルク 0.2 g を耐圧容器に入れ、バルブを付けた後、フロン 11/フロン 12（60/40 : w %）50 g を圧入し、被膜形成抗菌エアゾール製剤を得た。

実施例 11

スチレン-イソブレン-スチレンテレブロック共重合体（シェル化学製：カリフレックス-TR 1111）0.5 g、エチルセルロース 0.5 g、2-メントール 2 g、サリチル酸グリコール 0.6 g、タルク 0.2 g を耐圧容器に入れ、バルブを付けた後、LPG/ジメチルエーテル（60/40 : w t %）50 g を圧入し、被膜形成消炎鎮痛エアゾール製剤を得た。

実施例 12

フロン 11/フロン 12（60/40 : w t %）を圧入し、被膜形成エアゾール製剤を得た。

試験例 1

実施例 1、7 及び参考例 1 のエアゾール製剤を皮膚に噴射し、被膜形成の状態を観察した。結果を表 1 に示す。

表 1 被膜形成エアゾール製剤の噴射試験

	乾燥時間	被膜のべとつき	被膜の状態
実施例 1 の製剤	1秒	なし	良好
実施例 7 の製剤	1秒	なし	良好
参考例 1 の製剤	4分	多い	良好

表 1 からわかるように、本発明の実施例 1、7 のエアゾール製剤は参考例 1 のエアゾール製剤に比べ、即乾性で使用感に優れていた。

(5) 発明の効果

本発明で得られる被膜形成剤として熱可塑性エ

ラストマー或は熱可塑性エラストマー及びセルロース系成分を配合したエアゾール製剤は、噴霧した時、即乾性の被膜を形成するため、べとつかず、さらっとしており非常に使用感が良い。また、この時得られる被膜は、強固ではがれにくい膜であるため有効成分が揮散したり、はがれ落ちたりすることなく、薬効的にも有用である。

以上のことから、本発明の製剤は消炎鎮痛剤、抗菌剤、昆虫忌避剤等の医薬品、ヘアスプレー、制汗剤、等の化粧品、医薬部外品及びその他の製剤として産業上、大変有用である。

特許出願人 久光製薬株式会社
代表者 中富博隆

